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LIMITED
ENVIRONMENTAL
ASSESSMENT FOR
RURAL HOUSING
IN EARTHQUAKE
AFFECTED AREAS

Limited Environmental Assessment for Rural Housing in Earthquake affected Area

Environmental Protection Cell
ERRA

July 2007

EARTHQUAKE RECONSTRUCTION AND REHABILITATION AUTHORITY
(ERRA)

The world's poor depend critically on fertile soil, clean water and healthy ecosystems for their livelihoods. Their well-being is directly linked to sustainable use of natural resources. Consequently, environmental degradation undermines the capacity of poor people to meet their daily needs. Sustainable use and restoration of natural resources is challenge for the ERRA and all partner organizations during reconstruction and rehabilitation.

(Adopted from UNEP)

EXECUTIVE SUMMARY

The earthquake of October 8, 2005, left 73,000 dead and about as many injured while 2.8 million people were left shelterless. It brought a greater damage to whole infrastructure including roads, health facilities, different institutional facilities and above all the sever damages of about 600,000 houses including scattered waste rural and urban houses in area of 30,000 Km^2 expanding North East of Pakistan and State of Azad Jammun and Kashmir. To provide the shelter at transitional level and challenge of reconstruction of private houses was one of the first step that ERRA took on. Population in rural area was more vulnerable due to access to them for relief and rehabilitation. The purpose of Rural Housing Reconstruction Strategy was to ensure that the destroyed or damaged houses are built back in accordance with the seismically safe designs that ERRA would prescribe. The construction of the private houses was left to the owners but they would only get financial assistance if they built according to the standards given by ERRA.

Environmental Assessment

The owner-driven construction policy has been going on well as far as the disbursments and compliance of prescribed designs is concerned. However, the scale at which the reconstruction is going on in the affected districts warrants an assessment of the effects reconstruction on fragile environment of the mountaineous areas. In order to identify the impacts, measures for risk minimization, halt further environmental degradation, and recommend measures for early recovery a Limited Environmental Assessment (LEA) has been carried out. The study has been driven by the Environmental Safeguards of the the World Bank, the Environmental Strategy of ERRA and the requirements of Pakistan Environmental Protection Act (PEPA), 1997.

The study aims to identify the physical, environmental and socioeconomic aspects together with the assessment of the potential impacts of housing reconstruction, material used in reconstruction, disposal of debris and its likely impacts on drainage, water quality and soil in surroundings. Suitable mitigation measures are recommended for alleviating the adverse impacts. A monitoring and management plan is also provided to periodically monitor various parameters in order to check the implementation and efficacy of mitigation measures.

Study Methodology

To conduct LEA, a team of experts was composed mostly of environmental experts from ERRA alongwith Environmental Planning and Monitoring Cells, surveyors, enumerators, data analysts, MIS experts and technical advisors. Secondary data was reviewed in line with the laws, international agreements, environmental guidelines, WB AidMemoir, Rural Housing and Environmental strategies of the ERRA to set environmental standards and questionnaire for carrying out the primary data collection in field. Previous assessments for damages carried out by WB, ADB, UNDP, ERRA, IUCN and MoE were consulted to understand the existing environmental conditions in the affected areas. The survey was carried out based on a questionnaire developed at the preliminary stage of LEA preparation.

Data regarding physical, social-economic and cultural parameters of the project area was collected through interviews with the community and key stakeholders. Data fields were clustered under broader headings depending upon the housing conditions; use of construction material; means of solid waste disposal; water and sanitation facilities; and landslides, and their impacts on availability of land for cultivation and construction. Given the challenges of difficult terrain, bad weather and scattered population 2411 households were consulted in 46

Union Councils. Total population of 19211 was covered. Keeping aside the quality of the facilities, according to the data collected most of the communities (around 80-90%) had access to basic amenities like roads, hospitals, schools, water supply, telephone, electricity etc. Major source of fuel are kerosene oil, LPG and fire wood for heating and cooking purposes. More houses are pacca (Brick and cement) against kacha (Mud) prior to earthquake, with very few having bathrooms /latrines and separate kitchens. Sanitary conditions are deplorable with many household disposing off the excreta into open pits.

Environmental Management Plan

As an outcome of this LEA, the Environmental Mangement Plan (EMP) has been developed, in order to identify potential environmental impacts of the project activities, and to provide the implementation mecahism for the mitigation measures, to reduce if not eliminate these negative imapcts. EMP provides the mitigation plan, which identifies the mitigation measures against each project activity, and assigns roles and responsibilities for implementing the mitigation actions. EMP also provides the environmental monitoring framework, environmental training and capacity building requirements and environmental reporting and documentation protocol.

Key Recommendations

- Proper collection and disposal of debris
- Illegal cutting of trees should be monitored and stopped through respective Forest Departments of AJK and NWFP
- Alternative solution of fuel wood should be worked out
- Clean Drinking Water through Government Water Schemes should be made available for safety and health of the children living in these areas
- Proper latrines may be incorporated in the ERRA rural housing designs.
- Environmental Awareness may be initiated through various sources like meetings, workshops at UC level, mosques at village levels, etc.
- Environmental Assessment needs to be carried out on recurring basis, once every year, covering all reconstruction & rehabilitation activities.
- Dedicated environmental coordinator should be appointed at regional level for monitoring of rural reconstruction activities.

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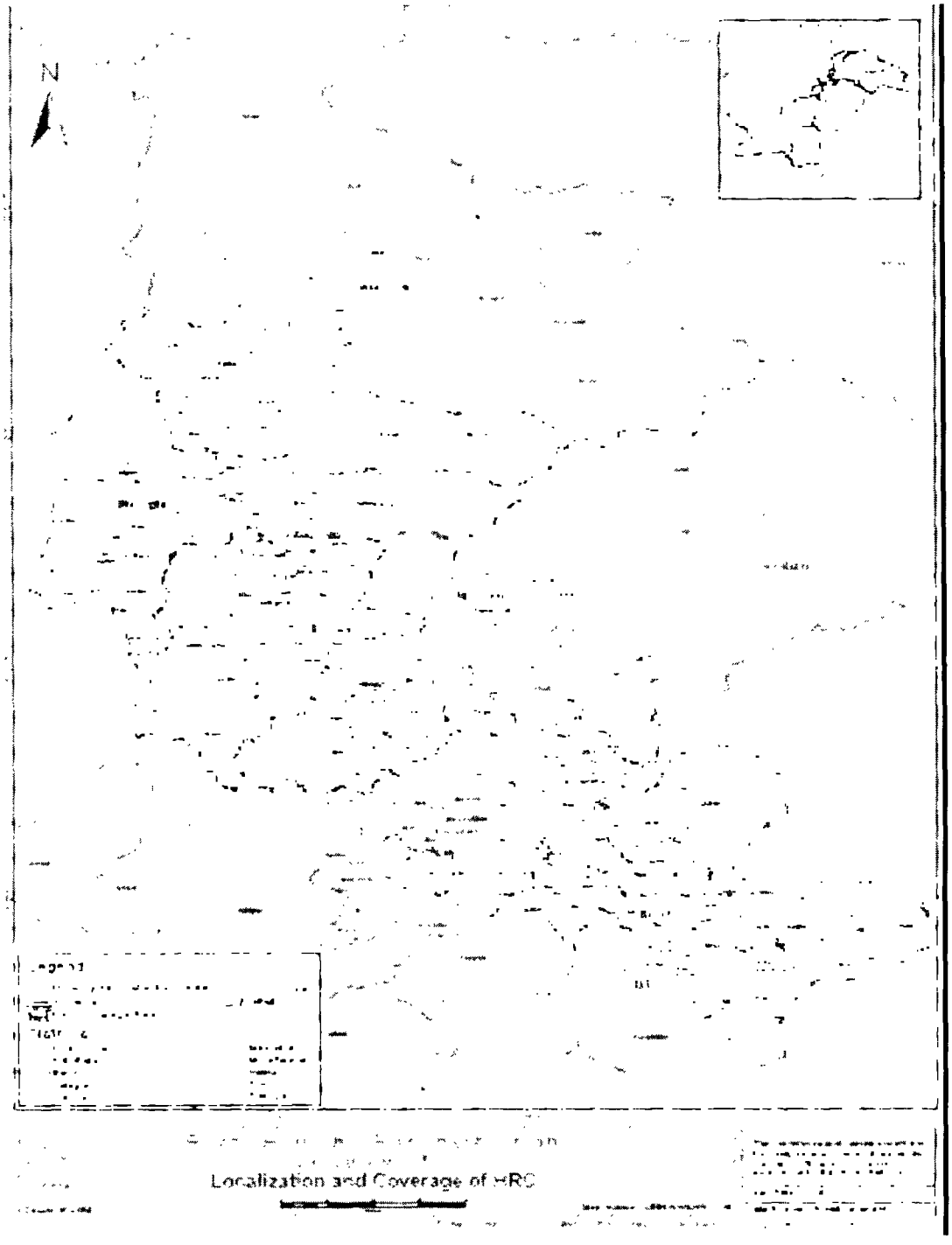
Acronyms and Abbreviations

ADB	Asian Development Bank
AIT	Assistance and Inspection Team
AJK	Azad Jammu and Kashmir
CBO	Community-Based Organization
CCB	Citizen Community Board
CFW	Cash for Work
DCO	District Coordination Officer
DRU	District Reconstruction Unit
EIA	Enviornmental Imapcat Assessment
ERRA	Earthquake Rehabilitation and Reconstruction Authority
ESSAF	Environment and Social Screening and Assessment Framework
EMO	Environmental Monitoring Officer
EMP	Environmental Monitoring Plan
FRC	Federal Relief Commission
CGI	Corrugated Galvanized Iron
GOP	Government of Pakistan
HQ	Headquarters
IDPs	Internally Displaced Persons
IEE	Initial Environmental Examination
IUCN	International Union for Conservation of Nature
LPG	Liquefied Petroleum Gas
LEA	Limited Environmental Assessment
MoE	Ministry of Environment
MIS	Management Information System
MT	Metric Ton
NADRA	National Database and Registration Authority
NEQS	National Environmental Qaulity Standards
NESPAK	National Engineering Services Pakistan
NGO	Non-Governmental Organization
NWFP	North West Frontier Province
PEPA	Pakistan Environmental Protection Act 1997.
PERRA	Provincial Earthquake Reconstruction and Rehabilitation Agency
RCC	Reinforced Concrete Cement
SERRA	State Earthquake Reconstruction and Rehabilitation Agency
TMA	Tehsil Municipal Authority
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UN-Habitat	United Nations Human SettlementsProgramme
UNICEF	United Nations International Children and Educational Fund
UNV	United Nations Volunteers
WATSAN	Water and Sanitation
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization

WWF	World Wildlife Fund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Chapter 1
INTRODUCTION

In October 2005, a major earthquake struck parts of Pakistan and Azad Jammu & Kashmir (AJK), resulting in great loss of life and property. In order to implement the reconstruction and rehabilitation activities the government of Pakistan established the Earthquake Reconstruction & Rehabilitation Authority (ERRA). The Rural Housing Reconstruction is one of the key activities carried by ERRA. Part of this reconstruction activity is funded by the World Bank (WB). In accordance with the prevailing Environmental Legislations and the WB safeguard policies a Limited Environmental Assessment (LEA) has been carried out. This document presents report of this assessment.

OVERVIEW OF THE DISASTER AND ITS IMPACT

02. On October 8, 2005, at 08:50 PST, an earthquake of 7.6 magnitude occurred in South Asia including Pakistan and AJK. The earthquake epicenter was located 100 kilometers north-northeast of Islamabad, along a fault associated with the Indian subcontinent moving northward at a rate of about 40 mm/yr and colliding with the Eurasian continent. Tremors were felt across a wide area of South Asia, from central Afghanistan to western Bangladesh. The earthquake left widespread destruction in its wake, killing at least 73,000 people, severely injuring another 70,000, and leaving 2.8 million people without shelter. In at least three Districts in AJK and five in NWFP, public and private housing and shelter infrastructure, social service delivery, governance structures, commerce, and communications were either damaged or destroyed. The overall cost of reconstruction is estimated at approximately US$5.2[1] billion, which includes estimated costs for relief, livelihood support for victims, and reconstruction.

03. The Government of Pakistan responded quickly to the emergency. A President's Relief Fund was established to mobilize resources for relief efforts along with a 12-point national strategy for reconstruction and rehabilitation outlined by The Prime Minister. The Prime Minister's office appointed a Federal Relief Commission and corresponding Relief Coordinator, with the overall responsibility for overseeing relief efforts. Furthermore, the President established an Earthquake Reconstruction and Rehabilitation Authority (ERRA) to facilitate the rebuilding and repair of damaged infrastructure, including housing, roads, bridges, government buildings, schools and hospitals.

04. The Government of Pakistan also requested for international assistance, which started arriving within days of the earthquake. Among many other donors The World Bank approved supplemental financing of US$200 million within weeks of the earthquake to help the Government meet emergency requirements. On November 1, 2005, the Government presented its National Plan of Action to effectively meet the challenges posed by the earthquake. In support of this, the National Database and Registration Authority (NADRA) was assigned the task to create database recording all assistance provided, information about affectees, damaged household and grants disbursement. AJK and eastern NWFP were badly struck and suffered extensive damage to economic assets and infrastructure, social service delivery, commerce, and communications either debilitated or destroyed. All social sectors including Health, Education, Social and Physical Infrastructure, Livelihood, Housing, Water and Sanitation, Environment and Governance were badly affected to different degrees. The vulnerable groups, mainly women and children living in inaccessible mountain areas with low levels of income and service provision needed immediate assistance.

DAMAGE CAUSED BY THE EARTHQUAKE

Social Infrastructure Housing- Damage - Rs. 61.2 billion (US$1.03 billion.)

05. The Preliminary damage assessment Report published by the Asian Development bank and The World Bank on November 15, 2005 indicated the direct damage caused by the earthquake at approximately Rs. 135.1 billion (US$2.3 billion). Private housing damages were calculated at Rs. 61.2 billion (US$1.03 billion). The earthquake destroyed 203,579 units of housing, damaged another 196,574 and left an estimated 2.8 million people in need of shelter. Of the total housing stock, 84 percent was damaged or destroyed in AJK and 36 percent was damaged or destroyed in NWFP. The affected houses were predominantly rural, with urban units accounting for only 10 percent of the total. Much of the rural housing was located on steep slopes difficult to access.

06. Transport, education, agriculture and livestock sectors also suffered sizable damage, totaling Rs. 20.2 billion (US$340 million), Rs. 19.9 billion (US$335 million), and Rs. 12.9 billion (US$218 million), respectively. The cost of reconstruction of lost assets and the restoration of services was estimated to be Rs. 208.1 billion (US$3.5 billion). A substantial portion of these funds was on account of housing reconstruction, which would cost an estimated Rs. 92 billion (US$1.6 billion).

07. About 85 percent of the estimated 3.2 million to 3.5 million population affected by the earthquake was rural. Approximately 84 percent of the housing stock has been damaged or destroyed in the affected districts of AJK, and 36 percent has been damaged or destroyed in the affected districts of NWFP. The extent of damage peaks at 100 percent in Balakot tehsil, with several other tehsils experiencing 80 to 95 percent damage. Even places relatively far from the epicenter like Abbottabad experienced damage at around 15 percent. The greatest impact on the housing stock was on traditional (kacha) houses, where the combination of un-cemented stone walls, heavy timber and mud roofing resulted in the total collapse of many houses and a heavy loss of life.

Source: Pakistan: Preliminary Damage and Needs Assessment

Table-1.1. REGION WISE SUMMARY OF DAMAGED AND DESTROYED UNITS

Muzaffarabad	123,679	69,943	28,278	79
Bagh	59,623	33,806	21,208	92
Poonch	61,678	12,823	38,882	84
AJK TOTAL	**244,980**	**116,572**	**88,368**	**84**
Shangla	67,003	15,661	10,821	40
Mansehra	203,109	31,323	43,282	37
Kohistan	74,087	4,350	18,395	31
Abbottabad	153,819	6,961	27,051	22
Batagaram	44,585	28,712	8,657	84
NWFP TOTAL	542,603	87,007	108,206	36
AJK + NWFP	787,583	203,579	196,574	51

Source: Rural Housing Brief ERRA

ENVIRONMENTAL AND SOCIAL ASPECTS

08. The earthquake and its aftermath are generating unprecedented amounts of waste and increasing pressure on natural resources. The human cost of the earthquake is a key indicator of the extend of damages but other damages and their environmental impact will enhance the future disaster risk.

- ***Use of Natural Resources in Housing Reconstruction:***

09. Inappropriate management of waste and natural resources is likely to have livelihood, human health and other environmental impacts, not only in the directly affected areas, but also in the lower catchments. The waste and impact on natural resources can magnify already unsustainable degradation and exploitation of natural resources. In particular, vegetation cover which will, unless properly managed, further increase vulnerability to landslides of slopes already destabilized by seismic activity, deforestation and grazing. The main environmental risk of ill planned housing projects poses a threat to natural resources by over-exploitation of building materials including timber and stone which may be conveniently located but serving vital environmental functions such as slope stabilization and soil protection.

- ***Debris dumping:***

10. One of the environmental costs of the rural housing project could be debris consolidation. Debris management has to be calibrated. Inappropriate disposal of waste alongside rivers, drains, roads, fields and so on is clearly a major problem, which can worsen once large-scale reconstruction properly commences in valleys and other areas where land is scarce.

- ***Solid waste management and landslides:***

11. The solid waste along with landslide debris is impacting livelihoods. (For example, it is disrupting agriculture and commerce by delaying reconstruction and blocking roads and other access). It is also impacting human health through inappropriate demolition and disposal of material. These impacts could be reduced through appropriate management measures, including ones aimed at properly inspecting damaged infrastructure; safely demolishing structures that are damaged beyond repair; sorting, segregating and recycling material; and identifying appropriate storage and disposal options for non-recyclable material, through an EA study and relevant recommendations.

THE PROJECT

12. In response of this huge reconstruction need, ERRA prepared a Rural Housing Reconstruction Strategy. The purpose of the strategy is to ensure that an estimated 400,000 houses that were either destroyed or damaged, are rebuilt by using earthquake resistant building techniques, through grant assistance from the Government to eligible households. The immediate need for sheltering of affected Population was met by provision of tents, distribution of basic building materials and tools/cash for damaged household, provision of Cash for self relocation and host families, and Relocation to camps/transition shelter. To respond to the need of repair and reconstruction of permanent housing, Rural Housing Project was proposed by the Housing Cell at ERRA to address the long-term reconstruction needs of the local community. The project based on the owner-driven strategy consists of three components: (a) housing grants for reconstruction or restoration and strengthening; (b) technical assistance and (c) capacity building of all affected stakeholders by training.

LIMITED ENVIRONMENTAL ASSESSMENT STUDY AND DEVELOPMENT OF EMP

13. Environmental Assessment (EA) is a process to examine the environmental aspects, impacts risks and benefits associated with any project. It is a statutory key baseline activity in all reconstruction projects including urban housing, town planning, roads, health, education and industry etc. Under the ERRA Environment Strategy all reconstruction projects sponsored by ERRA or by any other agency are bound to make a provision of a certain amount of their project budget to undertake environmental assessment and adopt affirmative actions to ensure compliance with ERRA environment policy and laws of the country and state. Ultimately the outcomes of the assessment are used as tool for the formulation of Environmental Management Plant which focuses the roles, responsibilities and time frame for its implementation.

- ***Limited Environmental Assessment Study of Rural Housing Project:***

14. In compliance with the Pakistan Environmental Protection Act 1997 (PEPA) requirements, and World Bank policy regulations, an Environmental Assessment (EA) was being conducted for the Rural Housing Project. The study conducted by Environment Protection Cell at ERRA, primarily assesses the housing construction support components of the project. The objectives of the study was to determine the key environmental risks in the project activities, identification of the associated mitigation measures which can be incorporated in the project design / execution to minimize if not completely eliminate these risks, and determination of the project status vis-à-vis the WB safeguard policies and national environmental legislation.

15. As an outcome of the study, an EMP has been developed and shared, which consists of the set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of the WB-financed ERC project (Rural Housing Component) to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan also includes the actions needed to implement these measures. The proposed EMP: (a) identify potentially adverse environmental impacts associated with the ERC project (rural housing component), and identify a set of responses to these adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.

- ***Objectives of the LEA Study:***

16. The following are the main objectives of the LEA study:

- To establish the linkage between environment and rural housing.
- Collection of data/information for description of the existing environmental conditions including physical, ecological and socio-economic environment in the project area during rural reconstruction.
- Assess the proposed activities of the Rural Housing Project and to identify their potential impacts on physical, ecological and socio-economic environment, and to determine their significance
- Propose mitigation measures including a monitoring mechanism that can be incorporated during the reconstruction
- Prepare Environmental Monitoring and Management Plan (EMP)
- Prepare LEA report for submittal to World Bank

- Develop partnership with other organizations involved in rural housing for sustainable use of resources

LEA METHODOLOGY

TOR and Approvals

17. The TOR for carrying out the limited Environmental Assessment (LEA) as per the Aid Memoir of September 2006 were prepared by the World Bank and reviewed by ERRA. Based on the damage assessment of the rural housing carried out for housing grant and flow of cash it was planned to carry out a LEA at this stage to address the environmental problem emerging out of the reconstruction in rural areas. Attached at Annexure – I.

Understanding the Proposed Operation and Review of Alternatives

18. Details of the proposed project activities were collected from housing sector of ERRA and other partners. Alternatives to the proposed operations were reviewed to establish the environmental soundness of the reconstruction. Details of the proposed project and a review of alternatives have been provided in Chapter 3 and 4 respectively.

Review of Policy, Legislation and Guidelines

19. The national legislation, international agreements, environmental guidelines, best environmental practices and environmental strategy of the ERRA were reviewed to set environmental standards and questionnaire for carrying out the survey that has been discussed in detail in Chapter 2.

Review of Secondary Data

20. Previous environmental damage assessments carried out by WB /ADB / UNDP / ERRA / IUCN and ministry of Environment in the area and other published and un-published information was collected to understand the existing environmental conditions in the area including the following:

- Physical environment - topography, geology, geomorphology, soils, surface and groundwater resources and climate;
- Biological environment - habitat types, flora and fauna (particularly rare or endangered species), critical habitats, and vegetation communities within affected area.
- Socio-economic environment-settlements, socio-economic conditions, infrastructure and land use; and
- Heritage aspects -sites of cultural, archaeological or historical significance.

Field Data Collection

21. A team of environmental specialists, wildlife specialists, botanists, sociologists, water resources specialists, and anthropologist was formulated for collecting primary data. The regional experts of PERRA and SERRA were also supervising the teams. Enumerators were trained prior to collection of (team formulated under ERRA Environmental Protection Cell - EPC) data and regular meetings were held at the end of the day to identify the lesson learnt

from the field activities required, the secondary data collected was also ground-truth by and difficulties faced during the collection of data or getting the accurate information from the community.The sampling locations for data collection were identified with the help of available data of NADRA and Housing sector of the ERRA. Respective DRUs in each district were consulted for extent of damages and reconstruction activities. With respect to flora and vegetation, major source of timber were identified by the foresters and available damages assessed by the MoE were identified. The sampling locations were randomly selected, ensuring that sufficient locations are sampled for each habitat and maximum number of the most affected locations belonging to each District/Tehsil/Union Council and their community be consulted for door to door data collection.

Community Consultation

22. The communities within the affected districts were consulted during the field work. The objectives of the consultation were to brief the communities about the purpose of survey and to collect their views and concerns regarding the same. The outcomes of the consultation are detailed in Chapter 6. Meetings were also held with partner organizations viz PPAF, SDC and UN-Habitat in the area. Consultation with communities was done at village level as well as in the form of public meetings held within their villages where possible.

Identification and Assessment of Impacts

23. Potential impacts arising from each identified parameter of the proposed survey were identified. These include effects of reconstruction activities on physical, biological, socio-economic and cultural environment, which are detailed in Chapter 6. Impacts were identified and assessed on the basis of field data, secondary data, expert opinion, and monitoring results of different sectoral teams of ERRA. The impacts identified were characterized in the tabulated form for development of EMP and future mitigation plan. It was also used to identify the gaps between the training imparted for reconstruction by POs.

Recommendations for Mitigation and Monitoring Measures

24. Mitigation measures to help, prevent or minimize all potential adverse environmental impacts of the reconstruction were identified based on a range of options including management and monitoring practices, alternative technologies, physical controls, or compensation. The proposed mitigation measures are based on an appreciation of the sensitivity and behavior of environmental receptors within the affected area, past experience, case studies, legislative controls, environmental guidelines, and expert advice. The recommended mitigation measures are shared in EMP section. Monitoring measures have been recommended for residual impacts (impacts remaining after applying the recommended mitigation measures) or for impacts that cannot be accurately predicted at the limited EA stage. In such cases advice on requisite monitoring measures was sought from experts involved in the EA and case studies of similar monitoring carried out in such disasters areas elsewhere.

Development of Environmental Management Plan

25. An EMP for each identified parameter and main issue and reconstruction activity has been prepared. The EMP provides a framework for implementing and managing the mitigation and monitoring measures recommended in the LEA. EMP includes the following:

- Mitigation and monitoring plan
- Definition of roles and responsibilities of the proponent, contractors and monitoring teams;
- Requirements for communication, documentation and training during the further training and monitoring and evaluation to be carried out for rural area.
- Restrictions on design, timing and conduct of the project; and
- Recommendation for other sectors of ERRA responsible for implementation of sectoral strategies specially WATSAN, Education and Health.

Methodology Applied for Data Collection:

26. The ERRA sectoral strategies of Rural Housing, Environment, Transportation etc, TRC and district profiles prepared by each DRU are an extensive reservoir and source of information about the earthquake hit area; still for environmental impact assessment of the project area some specific factual information was required. Identification of data needs was the first step in the exercise followed by selection of a set of suitable technique for data collection. Since the nature of information was more quantitative then qualitative, it was decided that a questionnaire would be developed based on the data needs, which will be filled out though semi-structured and structured interviews with the men and women of the study area based on household survey and ground truthing with consultation of DRUs..

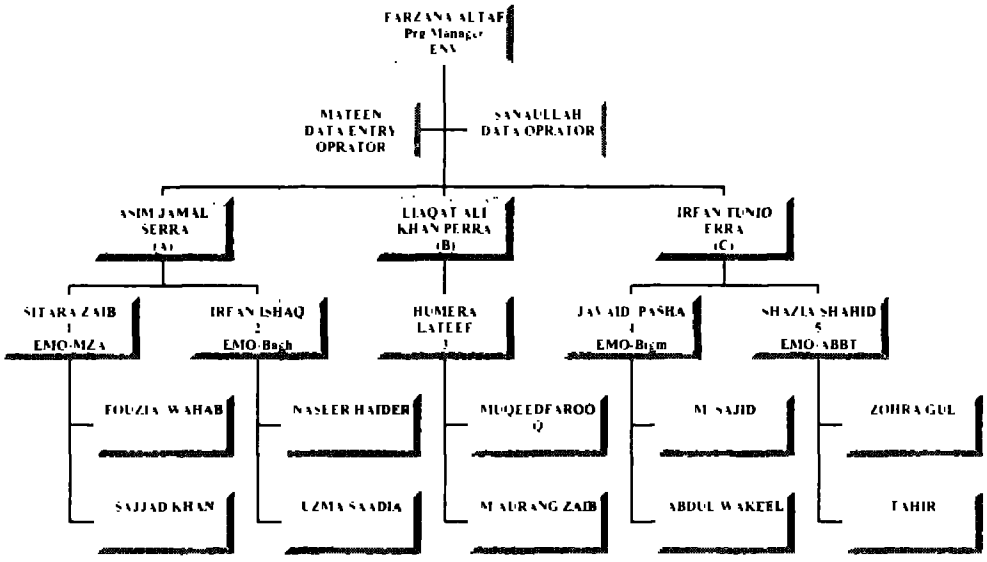
LEA Team:

27. The LEA team was headed by environmental experts with experience stretching over more then a decade. The minimum qualification for the numerators was Masters Degree and most of them were holding M.Phil and M.Sc degrees in Environmental Sciences, Anthropology and Forestry, Sociology. (Refer to **Annex-III** for details about survey team members). Since the cultural barriers of the area do not permit the women to interact with other men; a good number of females among the survey team was ensured. Moreover, in order to overcome cultural and language barriers, qualified and experienced people familier with local languages were preferred be engaged in the data collection process. All the survey team members were well versed with local customs, languages and had good knowledge about the project area.

Analysis of Area and Sampling of the UCs in Each District:

28. Since it was not possible to cover all UCs of the Project area, sampling was done based on a selection criterion. Irrespective of their distance from the centre and availability of road network, the major criteria for UC selection was extent of damage caused by earthquake in general and damage caused to rural housing specifically; however outreach issues were given due consideration and alternate means of transportation and communication were discussed.

TABLE .1.2 TEAM COMPOSITION FOR LIMITED ENVIRONMENTAL ASSESSMENT SURVEY



Development of Questionnaire:

29. Analysis of data needs and development of questionnaire went hand in hand. The questionnaire takes into account each project activity and its corresponding risk to the environment, at this stage emphasis was being laid on utilizing the available secondary data about the pre and post environmental situation of the area. The questionnaire has close ended inquires built around seven (7) interlinked sections i.e. access to social amenities, housing conditions and use of construction material, solid waste disposal and water and sanitation. Each section has multiple questions feeding into and building upon each other. (Final Household Survey Questionnaire attached at Annex -II).

Training of Numerators:

30. A one day training of master numerators was conducted in Islamabad in order to orient them about the study objectives, discuss each section at length, practice inquiry techniques and clarify confusions. This helped in bringing the whole team on the same wave length. Although the questionnaire had a set pattern of questions, still a common understanding was developed on shuffling the sequence according to the flow of discussions going on with individual respondent. Numerators were advised to refrain from asking direct questions and were encouraged to involve community member is interactive discussions. For survey and data collection the importance of adherence to the most basic norms like greetings people in local language, listening attentively, asking for clarifications in case of confusion were reinforced. Other considerations were choice of time and days, taking help from influential of the area and respecting the needs and engagements of the local people were also discussed.

Preparation of a Work Plan:

31. A detailed work plan was developed to undertake each activity and deadlines were assigned. Selection of team, collection of in house data, mobilization of team, on job training,

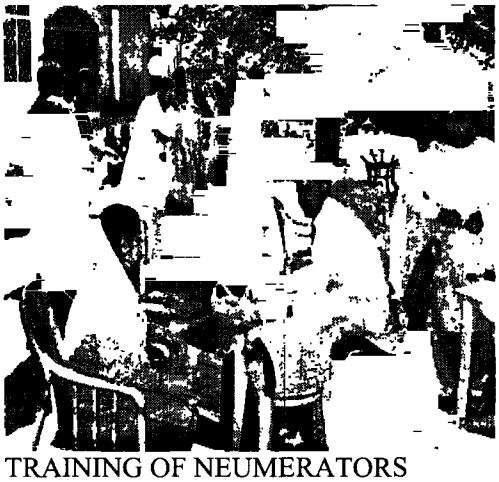
allocation of UCs, data review, experience sharing etc. Close ended methodology was adopted for data collection.

Figure-1.1 Details of AJK & NWFP Surveyed Area

District	Tehsil	UC	District	Tehsil	UC
BAGH	BAGH	*MALOT*	MANSEHRA	BALA KOT	*KAGHAN*
		RAVLI			*DHODIAL*
	DHIRKOT	*HILL SRUNG*			*HUNGRAI*
		MALOT			*MOHANDRI*
MZD	HATTIA BALA	*CHAKAR*		MANSEHRA	*ATTAR SHEESHA*
					BATTAL
	MUZAFARABAD	*CHATTAR KHLAS*			*CHATARPLAIN*
					DHANA
		GOJRA		OGHI	*OGHI*
		LUNGERPUR			*SANDAISAR*
		NOORA SEHRI			*SHUMDARA*
		PANJKOT	SHANGAL	BESHAM	*MERA*
POONCH	ABBASSPUR	*CHATHRA*		ALPURI	*BANIYAL*
	HAJEERA	*PAWATI*			*OPAL*
		SAIN KAQOOK			*RANYAL*
	RAWLAKOT	*DHAMNI*	BATAGRAM	BATAGRAM	*BATAGRAM*
		HURNA MERA			*SHAMLAI*
		PACHOOT			*BANKHAD*
		PAKHAR			*BATAMORI*
		RAVL			*SHAMLAI*
[illegible]	[illegible]	[illegible]		ALLAI	*BATKOL*
KOHISTAN	KOHISTAN	*PATTAN*			
		BANKHAD			
		BANKOT			

Data entry and Analysis:

32. Data entry support team was facilitated by the MIS section of ERRA department to develop a software that was updated at the end of every day as the field teams submitted the questionnaires along with responses from their respective UCs. Total number of questionnaire filled out were 2,411. Data results were obtained by applying a formula on the data collected in the field. Analysis of the data is done in percentages and proportions. A software was developed for data management and data control, as ERRa is working in different sector and environmental issues can be addressed as crosscutting in each of them therefore said data interpretation can also be used for WATSAN and rural housing.



TRAINING OF NEUMERATORS

FIELD DATA COLLECTION

EA Report and Preparation of EMP

33. Based on the primary and secondary data, as a final outcome of the study an EA report and EMP was prepared and presented in chapter 6.

CHAPTER 2
ENVIRONMENTAL POLICY, LEGISLATION AND GUIDELINES

This chapter explains about the statutory documents controlling different aspects of environment in Pakistan and institutional set up for implementation of the legislation and rules formulated thereunder.

34. This chapter provides a synopsis of environmental policies, legislation, and guidelines that have relevance to the environmental assessment of the project. These include national environmental policy, legislation & guidelines; . ERRA is required to adhere to the relevant requirements of laws and policies during the reconstruction and rehabilitation and implementation of all the projects and strategies formulated under the damage assessment by different international and national agencies.

NATIONAL ENVIRONMENTAL LEGISLATION

Environmental Protection Legislation

35. The Pakistan Environmental Protection Act, 1997 (PEPA) is the basic legislative tool empowering the government to frame regulations for the protection of the environment. The Act'97 is broadly applicable to air, water, soil, marine and noise pollution, as well as the handling of hazardous waste. Penalties have been prescribed for those contravening the provisions of the Act. The powers of the Federal and Provincial Environmental Protection Agencies (EPAs) were also considerably enhanced under this legislation and they have been given the power to conduct inquiries into possible breaches of environmental law either of their own accord, or upon the registration of a complaint.

36. Under section 12 of PEPA, no project involving construction activities or any change in the physical environment can be taken unless an IEE or EIA as required is conducted and a report submitted to the Federal or Provincial EPA.

37. In year 2000 the Government of AJK adopted the PEPA 1997 described above, and promulgated the AJK Environmental Protection Act.

Environmental Regulations

37. The Pakistan Environmental Protection Agency Review of IEE and EIA Regulations, 2000 (the 'Regulations'), prepared by the Pak-EPA under the powers conferred upon it by the Act'97, provide the necessary details on the preparation, submission, and review of the initial environmental examination (IEE) and the environmental impact assessment (EIA). It also emphasizes upon the mitigation of the adverse impacts caused during any project which is not covered under the Schedule-I and II of the regulations but comes under any other category. The Regulation classifies projects on the basis of expected degree of adverse environmental impacts and lists them in two separate schedules. Schedule I lists projects that may not have significant environmental impacts and therefore require an IEE. The Regulations also require that all projects located in environmentally sensitive areas require preparation of an EIA. A similar regulation for AJK is under preparation and currently the above mentioned regulation is being broadly followed in AJK.

Pollution Control

38. The NEQS were first promulgated in 1993 and were last revised in 2000. The NEQS specify standards for industrial and municipal effluents, gaseous emissions, vehicular emissions, and noise levels. The Act'97 specifies the imposition of a pollution charge under section 17 in case of non-compliance with the NEQS Standards for disposal of solid waste. Whereas in this case the solid waste generated in rural areas have been assessed which is not liable to any charge but needs proper management plan in order to protect the water resources, flora and above all the already damaged environment of the area affected by the earthquake. Similar standards for AJK do not exist, currently the above cited NEQS of Pakistan broadly provide the guidelines for pollution control.

ANTIQUITIES ACT 1975

39. The protection of cultural resources in Pakistan is ensured by the Antiquities Act of 1975. Antiquities have been defined in the Act as ancient products of human activity, historical sites, or sites of anthropological or cultural interest, national monuments etc. The act is designed to protect antiquities from destruction, theft, negligence, unlawful excavation, trade and export. The law prohibits new construction in the proximity of a protected antiquity and empowers the Government of Pakistan to prohibit excavation in any area which may contain articles of archaeological significance[r1].

National Environmental Guidelines

40. The Pakistan Environmental Protection Agency prepared the Pakistan Environmental Assessment Procedures in 1997. The guidelines pertaining to the review process of EIA's have been given regulatory status in the Review of IEE or EIA Regulations 2000. They are based on much of the existing work done by international donor agencies and Non Governmental Organizations (NGO's).

41. The package of regulations prepared by PEPA includes:

- Policy and Procedures for Filing, Review and Approval of Environmental Assessments;
- Guidelines for the Preparation and Review of Environmental Reports; Guidelines for Public Consultation;
- Guidelines for Sensitive and Critical Areas; and
- Sectoral Guidelines

42. Similar guidelines do not exist in AJK hence the guidelines described above can be followed in AJK as well.

INTERNATIONAL GUIDELINES

World Bank Guidelines on Environment

43. The principal World Bank publications that contain environmental guidelines are listed below.

- Environmental Assessment-Operational Policy 4.01. Washington, DC, USA.World

Bank 1999.

- Environmental Assessment Sourcebook, Volume I: Policies, Procedures, and Cross-Sectoral Issues. World Bank Technical Paper Number 139, Environment Department, the World Bank, 1991.
- Environmental Assessment Sourcebook, Volume III: Guidelines for Environmental Assessment of Energy and Industry Projects. World Bank Technical Paper No. 154, Environment Department, the World Bank, 1991.
- Pollution Prevention and Abatement Handbook: Towards Cleaner Production, Environment Department, the World Bank, United Nations Industrial Development Organization and the United Nations Environment Program, 1998.

Framework of Environment and Wildlife Institution in Pakistan and AJK.

44. Headed by a federal minister, the Ministry of Environment is the main government organization responsible for the protection of environment and resource conservation. The Ministry works with the Pakistan Environmental Protection Council (PEPC), and the Federal and Provincial Environmental Protection Agencies formed under the PEPA 1997. The roles, responsibilities and authorities of PEPC and the EPA's are defined in the PEPA 1997. In AJK the AJK-EPA works under the Planning and Development Division. While forest, fisheries and wild life have their setup under the Ministry of Forest headed by separate minister and sceretary.

Federal/Provincial and AJK Environmental Protection Agencies

45. The Federal government has also formed the Federal EPA, which is headed by a Director General and has wide-ranging functions given in PEPA 1997. These include the preparation and co-ordination of national environmental policy for approval by the PEPC, administering and implementing the PEPA 1997 and preparation, revision or establishment of NEQS. The Provincial Environmental Protection Agencies are formed by the respective Provincial Governments. A Director General who exercises powers delegated to him by the Provincial Government heads each Provincial EPA. IEE's and EIA's are submitted to provincial EPA's for approval. For Azad Jammu & Kashmir, the AJK EPA performs similar functions as described above.

WORLD BANK SAFEGUARD POLICIES

46. The project has also been analyzed against the WB safeguard policies: OP 4.01 (environmental assessment), OP 4.04 (natural habitat), OP 4.36 (forestry), OP 4.09 (pest management), OP 4.37 (safety of dams), OP 7.50 (projects in international waters) and OP 7.60 (Projects in Disputed Areas). These policies and their applicability for the ERC project are briefly introduced below.

Environmental Assessment (OP 4.01)

47. The World Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. The OP defines the EA process and various types of the EA instruments. The Bank classifies the proposed project into one of four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.

(a) *Category A*: A proposed project is classified as *Category A* if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. For a *Category A* project, the borrower is responsible for preparing a report, normally an EIA (or a suitably comprehensive regional or sectoral EA).

(b) *Category B*: A proposed project is classified as *Category B* if its potential adverse environmental impacts on human populations or environmentally important areas—including wetlands, forests, grasslands, and other natural habitats—are less adverse than those of *Category A* projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigatory measures can be designed more readily than for *Category A* projects. The scope of EA for a *Category B* project may vary from project to project, but it is narrower than that of *Category A* EA.

(c) *Category C*: A proposed project is classified as *Category C* if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a *Category C* project.

(d) *Category FI*: A proposed project is classified as *Category FI* if it involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.

Compliance Status: The Rural Housing ERC project is categorized as Category B. In view of the nature and extent of the proposed activities, the proposed project is expected to generate no or limited adverse environmental effects. The present LEA has been developed in response to this OP.

Natural Habitat (OP 4.04)

48. The conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long-term sustainable development. Through this OP, the Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions.

Compliance Status: This OP is not triggered, since the project activities are unlikely to change the natural habitat. The rural housing construction activities are being conducted in areas which are already populated and where natural environment has been modified.

Forestry (OP 4.36)

49. The objective of this Policy is to assist the WB's borrowers to harness the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services and values of forests.

Compliance Status: This OP is not triggered, since the project activities are unlikely to affect the forest resources. Most of the construction activities require a limited amount of wood, which is mostly salvaged from the destroyed/damaged houses. Additional control measures have been included in the prepsent LEA to forestall any adverse impacts on the forest resources of the area.

Pest Management (4.09)

50. Through this OP, the WB supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides.

Compliance Status: The project does not support procurement or usage of any pesticides. Hence this OP is not triggered.

Safety of Dams (OP 4.37)

51. The Policy seeks to ensure that appropriate measures are taken and sufficient resources provided for the safety of dams the WB finances.

Compliance Status: The project does not involve any work related to dams. Hence this OP is not triggered.

Projects on International Waterways (OP 7.50)

52. This OP defines the procedure to be followed for projects the WB finances that are located on any water body that forms a boundary between, or flows through two or more states.

Compliance Status: This OP is not relevant to the project, since the project activities do not involve any work related to the international waters.

Projects in Disputed Areas (OP 7.60)

Projects in disputed areas may raise a number of delicate problems affecting relations not only between the Bank and its member countries, but also between the borrower and one or more neighboring countries. In order not to prejudice the position of either the Bank or the countries concerned, any dispute over an area in which a proposed project is located is dealt with at the earliest possible stage.

The Bank may proceed with a project in a disputed area if the governments concerned agree that, pending the settlement of the dispute, the project proposed for country A should go forward without prejudice to the claims of country B. [1]

Since parts of the proposed project falls in the Azad Jammu and Kashmir, which is a disputed area, this OP is triggered and the provisions of this Policy will be followed. The Project will ensure that through its intervention the status of the disputed area is not affected.

[1] Excerpts from the OP 7.60. WB Operational Manual. November 1994.

CHAPTER 3
PROJECT DESCRIPTION

This chapter defines the basic components of the Rural HousingERC-Project (Rural Housing Component) and different activities opted under the project.

53. The ERRA rural housing recovery and reconstruction strategy comprises of a variety of activities and modes of assistance aimed at helping households transition from their current state of displacement to being re-housed in permanent housing of seismically acceptable standards. The predominant form of suggested assistance is cash grants for owner-driven reconstruction and rebuilding turned into a mode well suited to the 90% rural affectees.

54. To support the emergency recovery and reconstruction efforts of the Government of Pakistan, the World Bank (WB) has initiated the Emergency Recovery Credit (ERC) project. The ERC project aims at providing support to the Government of Pakistan's program of earthquake-related reconstruction and rehabilitation. Specifically, the project objectives are to support the efforts of the Government of Pakistan to:

- Reduce the immediate suffering resulting from the effects of the earthquake and restore livelihood destroyed by the earthquake;
- Restore basic services to the affected population and rebuild public infrastructure; and start the recovery and reconstruction process.

55. The ERC project consists of the following four components:

- **Housing:** This component supports the Government's homeowner-driven housing reconstruction program. This component is providing (a) housing assistance in the form of cash grant for replacement of destroyed homes with new seismic resistant core units and the restoration and strengthening of damaged homes to seismically acceptable standards, with eligibility determined by a detailed Damage and Eligibility Survey, and (b) technical assistance and capacity building to support the ERRA and provincial and local government in overall project management, reporting, monitoring and evaluation and compliance with the social and environmental framework, development of a grievance redressal mechanism and other activities. IDA financing is provided for the reconstruction and restoration of approximately 87,000 units, which represent 20-25 percent of the total affected housing units. The rebuilding and repair was planned to be owner driven, with household utilizing the own raw material, craftsmen, and receiving technical assistance. Disbursement has been made according to progress and technical certification to ensure construction quality and seismic standards.

- **Livelihood Support**: This component involves providing cash grants to the affected households, in order to protect the most vulnerable households, while also rejuvenating economic activity by reviving small business and replacing asset lost in agriculture.

- **Import Financing:** This component aims at meeting the reconstruction-related demand for import of fuel, steel, cement and other related commodities and services.

- **Capacity Building:** This component envisages augmenting the existing implementation capacity of the Government of Pakistan to meet the heightened demand of reconstruction and recovery efforts.

The present LEA focuses the rural housing, since the other project components do not involve physical interventions.

Rural Housing Assistance:

56. In order to translate the ERRA Rural Housing Reconstruction Strategy into action at community level the Rural Housing Project has been designed. The Government has adopted an "owner-driven" strategy for housing reconstruction through which affected households are receiving housing grants from the Government. These households are enabled to utilize their own labour, hire skilled labour, and receive technical assistance from approved partner organizations to reconstruct or rehabilitate their houses.

57. The reconstruction strategy for the housing sector is underpinned by the following nine principles:

(i) Promote hazard resistant construction standards and designs;
(ii) Rebuild in-situ;
(iii) Ensure rebuilding is owner-driven;
(iv) Rebuild with familiar methods and easily accessible materials;
(v) Relocate settlements only when necessary;
(vi) Ensure urban replanning is limited and strategic;
(vii) Offer uniform assistance that is not compensation-based;
(viii) Coordinate multiple reconstruction initiatives and standards for equity; and
(ix) Link housing to livelihoods and infrastructure rehabilitation

Strategy Components:

58. The owner-driven strategy consists of three components:

(a) Housing grants for reconstruction or restoration and strengthening;
(b) Technical assistance and
(c) Capacity building of all affected stakeholders imparting training.

Housing Grants:

59. The financial assistance package applies to both katcha (Mud) and pucca (Concreate / cemented) houses. The package has been calculated on the basis of each beneficiary being able to build a "core house" of between 250 and 400 sq. ft. depending on his/her choice of structural solution. Choosing a more expensive structural solution may allow a lower covered area within the Reconstruction Grant of Rs. 1, 75,000. Beneficiaries are expected to use their own labor and/or hire labor as well as recycle building material as far as possible from the debris. Beneficiaries are receiving the grants in installments through local bank branches directly into their bank accounts. The payment of installments is linked to compliance with earthquake resistant standards issued by the ERRA for which the house owners have been receiving technical assistance from a reputable partner organization and are expected to supplement the cash grant with their own labor and recycled building materials from the debris. Houses without structural damage are not eligible for Government assistance. Survey was carried out by AIT in the affected areas with extensive involvement of Pakistan Army. Some Ucs were allocated to PPAF under the agreement of WB.

The Grants System Works as Follows:

60. For destroyed houses or houses with structural damage beyond economic repair, an initial payment of Rs. 25,000 has been made to cover immediate shelter needs. The balance of Rs. 1, 50,000 to be used for permanent housing would be paid in three installments: Rs. 75,000 for mobilization; Rs. 25,000 upon completion to plinth level; Rs. 50,000 upon completion of the walls. A final technical inspection of the roof is being made on frequent intervals for compliance with the structural designs provided. For structurally damaged houses within economic repair a payment of Rs. 25,000 was initially made to cover immediate shelter needs. A cash grant of Rs. 50,000 has been paid to 94% beneficiaries for restoration/retrofitting and third grant installment to 28% program beneficiaries. Moreover plinth and lintel level compliance rates of over 80% being achieved.

The Rapid GOP/ERRA's Rural Housing Reconstruction Program - a short trajectory from conception to implementation

April-Aug 2006
Detailed Housing Damage Assessment, Eligibility Determination, & Simultaneous Release of 2nd Grants

October 2006
110,000 beneficiaries starting to reconstruct; More than **100,000** skilled artisans and other stakeholders trained in seismic resistant construction

April 2007
250,000 houses started; 170,000 certified at plinth level; 32,000 houses completed
More than $900 million disbursed in housing April grants

Technical Assistance:

61. Technical assistance was required to support ERRA, local authorities and partner organizations in the implementation of the housing reconstruction strategy:
    - Hazard Risk Mapping to identify areas susceptible to future natural disasters including earthquakes, landslides and erosion/settlement.
    - Damage and eligibility assessment to (a) categorize the level of damage to each house; (b) establish lists of eligible beneficiaries (c) estimate the material requirements for reconstruction to contribute to supply chain management; (d) to verify the lists of eligible beneficiaries.
    - Earthquake-resistant Housing Solutions: Including construction drawings, bills of quantity, fabrication drawings, material schedules and illustrated construction manuals for each type of wall and roof system. There is no standard design for a house, rather, standard design principles for different wall and roof systems common to each area.

Assistance and Inspection Teams (AI Teams):

62. For house-to-house outreach a large number of assistance and inspection (AI) teams was Mobilized these AI Teams are composed of Engineer / Technical person mobilizers, Government official community members and army personnel. The teams responsibly carried out a damage assessment of the earthquake area, conducted a door to door assessment and compiled lists of eligible beneficiaries, signed the MOU with beneficiaries eligible for

compensation. The team responsible toensure compliance of quality/progress validated and disburse the cash grant linked to stages of construction and adaptation of seismically

acceptable standards construted housesnwith the set minimum seismic-resistant standards. The teams have been successfully and efficiently performing their duties of assessing the situation of vulnerable members of community and identify the category of grant the person is entitled to, the data is then sent to NADRA from where cash grants are being disbursed to the beneficiaries' Bank Account. The following table is based on the information provided by AI Teams after inspecting the level of construction in AJK and NWFP against which housing compensation grant is disbursed.

Capacity Building:

63. Beyond technical advice to the ERRA, capacity-building support has also been provided to local authorities and partner organizations through an intensive information dissemination campaign, as well as formal and informal training programs in the following areas:

- The ERRA policies and procedures: to ensure that consistent information of the ERRA policies and procedures are provided to beneficiaries;
- Social Mobilization, including sensitization of communities, preparation of village profiles to guide the overall reconstruction effort, establishment of Community Housing Reconstruction Committees, procurement sub-committees, community monitoring, etc.
- Specialized modules on subjects such as community land adjudication; relocation and re-planning; land and property rights; etc.
- Environment degradation reduction: to ensure that reconstruction considers environmental impacts and includes environmentally sustainable reconstruction techniques in order to avoid increasing future natural hazards.
- Housing Reconstruction Training: Simple guidance provided at the village level on incorporating earthquake resistant reconstruction techniques and materials into local housing types, and reconstruction using standard housing designs;
- Skilled Labor Training: More detailed, targeted skills training for skilled labor such as masons, carpenters, metal workers, plumbers and electricians as part of the overall livelihoods strategy;
- Compliance Training: enabling Government officials and partner organization staff to be able to verify whether housing reconstruction has correctly incorporated earthquake resistant techniques.

64. Training of over 100,000 beneficiaries including artisans, stakeholders/partners has been completed. A training format for Public information and support includes:

- Mass Information Campaign: The widespread and timely dissemination of information on the full range of assistance options, their eligibility criteria, and the means of accessing them is imperative for the efficient implementation of the program. Moreover, effective information dissemination on seismically acceptable construction solutions, alternative materials, methods of constructions, material availability, and pricing variations has also been ensured. Affected people are also provided with all information they required to be able to make informed decisions for housing reconstruction.

- Grievance Redressal Mechanism: a formal and transparent grievance redressal mechanism has been developed and made functional in order to allow affected people to raise their concerns and grievance. The mechanism has been catering for the following and some other area specific scenarios:

    - o Incorrect eligibility/housing damage assessment
    - o Incorrect amount of payment
    - o Lack of payment despite eligibility
    - o Payment delays
    - o Land and property related disputes

OVERALL RECONSTRUCTION PLAN

65. Based on the damage assessment of rural housing carried by AIT in all affcetd districts and ERC Project, reconstruction paln has been opted on owner-driven strategy. Elegible banafeiceries were given the financial assistance in tranches to ensure the quality of reconstruction and to avoid the migration of people to other areas. This plan also helped the unplanned development of new rural towns and expansion of volume of work. Total toll of damaged houses has been recoreded as 600,000 including rural and urban houses.About 600 AI Teams were formulated for data collection. Ist tranch of 25,000 were given to all affectees while 2nd grant installments has been given to 98% of rural population with household of 417,152 beneficiaries, 3rd grant installments to 29% about 97,102 beneficiaries. Other than rural housing reconstruction, based on the concentration of the population and community based needs social services have been improved in the EQA with the them of "BUILD BACK BETTER". The detailed construction plan of each district has been discussed with district profile in Appendex-1.

CHAPTER 4
ANALYSIS OF ALTERNATIVES AND FIELD DATA

This chapter provides a camparision analysis of alternatives of different options adopted by the management for natural disasters in world and reason of rural housing project. Fuether it has been discussed at length about theb data collected from the field at random basis and its analysis.

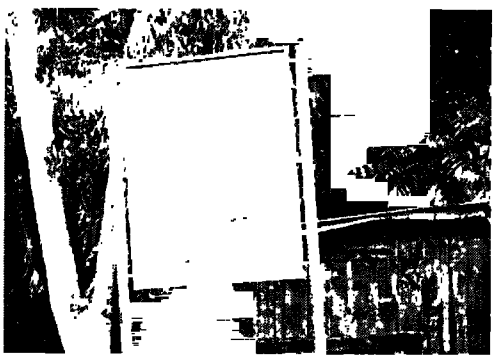
66. Housing reconstruction Assistancve Cash Grant Program developed after consultation with the experts on immediate and long term responses to natural calamities and hazard risk reduction. Based on the experiences and best practices shared by people involved with Tsunami, floods and earthquakes relief and rehabilitation, different alterative approaches were discussed and their implications were debated in the context of the earthquake hit area of Pakistan and AJK. ERRA's housing program was aimed at providing financial and technical assistance to affected home owners in AJK and NWFP, for reconstructing or retrofitting of their damaged houses, using a home-owner driven.

ADOPTED ALTERNATIVES VS. REJECTED ALTERNATIVES

Owner Driven Housing Strategy:

67. Based on the experiences and lesson learnt from the Tsunami and other recent disasters ERRA opted for Owner Driven Approach. Through this approach local uniqueness is respected over monolithic implementation of standards. This owner driven strategy respects the choice of the owners and negates the concept of tailor made housing for all irrespective of family size, accommodation requirements and traditional construction models etc. Owners of

Owner driven strategy with rapid construction



ERRA Design for Public Information

house were provided training and were encouraged to participate in the construction of their own houses to reduce financial strain and enabling them to rebuild with familiar methods through easily accessible materials ensuring sustainability and cultural preferences in design.

ERRA Approved Design for Construction:

68. ERRA approved seismic–resistant construction approach has been adopted to mitigate/minimize the risks in future. Minimum structural design standards were developed

which met international standards. accepted requirements for low cost earthquake resistant housing, such as, houses having thinner walls, lighter roofing, well connected structural systems, excluding the use of katcha type construction.

Ensuring Seismic Safety by Discouraging Unplanned Settlements:

69. Construction and planning for any settlement had to take into account the results of seismic micro-zoning. In order to discourage people from building houses at landslide sites and hazard zones self designed houses have not been released second tranch. Beneficiaries/builders have been made aware of seismic resistant construction and artisans have been trained in seismic resistant construction techniques, popularized through intensive information dissemination campaigns.

Segregation/Exclusion of IDPs and Landless Issues:

70. No disbursement has been made to the IDPs living in camps, since most of them are landless so they will be covered by the landless policy once they return to their area of origin. It is planned that landless people, who have lost their lands, will be given 75,000 to purchase land in the areas of origin or in the adjacent UCs for reconstruction.

Housing Grant Vs a Lump Sum Amount:

71. The housing grant was to be paid in three installments to ensure timely reconstruction adherence to design parameters recommended by ERRA If a lump sum amount was paid to the houses the communities could have spent the grant on other consumer items, and it could not have been possible to ensure the construction and rehabilitation. The condition of disbursement after the inspection of compliance with ERRA seismic resistant standards ensured the risk mitigation for future, which could not have been possible in case of one-time grant. Similarly instead of giving a lump sum amount to all damaged houses an inspection was done to categories the degrees of damage.

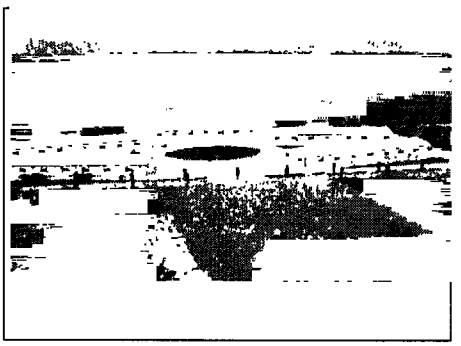
Relocating Only Where Necessary:

72. The populations threatened by seismicity, topography, soil conditions and other environmental factors, were relocated. One example is Balakot, which is planned to be moved to Bakrial (not included in the WB funded ERC project). Temprory shelters were provided to the people who lost their land due to landslides and heavy monsoon/winter rain. Twelve villages threatened by landslides have been evacuated and relocated. 600 shelters temporary shelters (prefabricated) have been provided in Balakot and Jabba camp in NWFP and Chila Bandi in Muzafarabad.

73. To the extent possible the implementation of the programme has been decentralized to the lowest possible level. Local construction technology and raw materials have encouraged. Reconstruction efforts take into account of environmental concerns and support environmental friendly building techniques. All types of building options like bricks; stone masonry etc have been considered. Although brick construction is relatively expensive, still people are going for it; in Banna a brick costs 6 Rs. as compared to Rs. 2 in Rawalpindi. Timber frame is another alternate that was adopted.

Fast and Modern Technology:

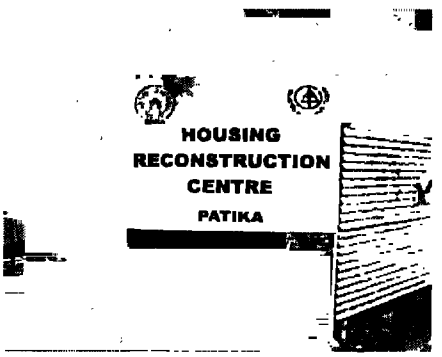
74. To respond to the immediate shelter needs, prefabricated houses, which were provided by the Quwaiti and Saudi Governemnts, were promoted. UNDP built prefabricated offices at UC level under its BEGINERS Project and some NGOs provided CGI sheets to provide shelter/roof on the tents. Alternate fast construction with ERRA designs have also been promoted.



PREFABRICATED HAZARA UNIVERSITY

Establishment of Construction Hubs vs. Purchase from Open Market:

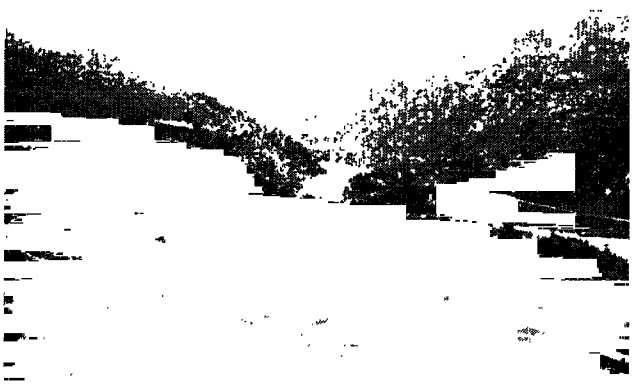
75. In order to ensuring the supply of building materials construction hubs are established by ERRA where construction material is provided at subsidized rate to support the beneficiaries in getting standard raw material at rates lower then in the market. At the same the transportation cost is also reduced by availability of material at the close by Hubs. Some information about Hubs is presented below. In NWFP construction material Hubs are monitored by ERRA's M & E Wing and prices are controlled with consultation of the manufacturers.



CHAPTER 5
DESCRIPTION OF THE BASELINE DATA ANALYSIS

76. This Limited Environmental Assessment of rural housing reconstruction takes into account a detailed analysis of the post earthquake situation of the area with reference to reconstruction of rural housing based on randam and limited sampling. Earthquake is a natural calamity which changes the shape of the region it hits; the tremors mutilate the face of the earth, which affects the socio economic conditions, ecosystem and distorts livelihoods. Since all these sectors are intricately woven and affect each other, it was necessary to take into account the demographic and geographic statistics and the pre and post earthquake conditions of the area in order to assess the impacts of the Rural Housing Project on the people, and environment of the area.

77. Two types of data was collected for analysis. Primary data for the report has been collected through a detailed field survey whereas sources of secondary data are ERRA, World Bank and ADB generated studies and technical reports produced by specialized agencies including all national and international partner organizations. District profiling for each district had also been done as part of the many activities of the LEA study. All reports consulted are available with brief profile of each district and reconstruction plan in Appendex I with focus on basic data and rural housing reconstruction.



A SCENIC VIEW OF THE TOPOGRAPHY OF NEELUM VALLEY

SECONDARY DATA:

Natural Environment of the Project Area:

78. The affected area in NWFP and AJK carries significant environmental importance for the entire country. Most of the forested area of NWFP falls in this region. The affected areas in NWFP and AJK in the form of River Kunhar, River Jehlum and River Neelum are also major contributory watershed for Tarbela and Mangla Dams respectively.

About 12 percent catchments area of Mangla Reservoir falls in NWFP affected areas. The most visible destruction to physical environment was caused by the landshearing, liquification and slides that continued long after the main earthquake due to frequent, and often severe, aftershocks; siltation of rivers and streams; damage to both natural and man-made water channels; damage to the forest resources due to landslides and rock-falls; damage to agriculture land - especially the terraced fields; roads, water mills and fish farms; and finally, the huge amount of debris due to fallen public and private buildings. Safe disposal of debris alone is a major environmental challenge. Another increasing threat to water and soil is also due to dumping of hospital and hazardous waste in open areas and close to water bodies. Biological environment suffered great loss resulting into the damaged root system of about 135,250 Acres in NWFP and about 187,000 Acres in AJK. Forest ecosystem was damaged due to land slides. Land slides and landslips during monsoon of July-August 2006 have enhanced the intensity and volume of damage.

Conditions in Affected Areas before the Earthquake:

- ***Social Environment***

79. The area most heavily damaged by the earthquake incorporates AJK and the eastern Districts of NWFP. This region is home to a scattered population of some 5.7 million people. The social structure in this region is closely-knit, and families on average comprise 7 people per household. About 88 percent of residents live in hilly, mountainous rural settlements, which range in size from 2 households to more than 300. A high proportion of the population lacks basic services and facilities like clean drinking water and safe disposal of waste. The region is also an area of extreme environmental vulnerability, characterized by frequent landslides and unchecked urban development with few environmental safeguards. Agriculture and livestock rearing are the primary sources of employment in rural areas, followed by small trading and businesses, construction and transport, mostly in the informal sector. Remittances are an important source of income and account for approximately a quarter of household's consumption expenditure, even for the poorest comunity in AJK and NWFP.

- ***Biological Environment***

Fauna

80. The region affected is rich in fauna, particularly endangered species. The affected area in AJK is also rich in flora. Muzaffarabad District is home to species like deodar, blue pine, spruce, chir, walnut, ash, maple, poplar, willow and oak. Bagh District, in addition to afore-mentioned species, also hosts horse chestnut, quercus, olea cafidata and acacia modesta. Blue pine and chir are the two species that provide the most significant forest coverage in AJK. Among the national parks, Machiara is in district Muzaffarabad. State of Azad Jammu and Kashmir is situated at the junction of Oriental and Palearctic zoogeographic regions resulting in the most rich and diverse biological, particularly faunal assemblage in the world. While in NWFP, the affected areas have a significant amount of lower alpine forest cover (the primary species include pine, spruce, deodar, fir and blue pine) and support a lot of local wildlife. District Manshera is one of the most enriched forest territories. Most of the forest is either reserved or guzara forest.

Wildlife and Fisheries: Two major conservation parks are situated in the earthquake affected areas. In AJK, it's the Machiara National Park and in NWFP it's the Palas Conservation Area and Ayubia National Park, although no accurate damages assessment has been done for wildlife but phenomenon of landslide and destabilization of slopes would

inevitably have negative bearing on nesting and feeding areas of wildlife. A large number of hatcheries and fish farming activities have also been affected both due to damages to the government operated hatcheries and research institutions facilities and the constant sliding and resultant silting of the streams, lakes and other water bodies.

Flora

81. The devastating earthquake of 9th October not only damaged housing and people but also disturbed a very fragile forest ecosystem of NWFP and AJK. It further affected the most commercial and valuable forest areas of NWFP and AJK. Large part of low moist temperate forest habitats of both NWFP and AJK were severely hit by the earthquake shocks, where trees were uprooted, slipped and felled and the trees habitat was eroded and mountains cracked. Those cracks were further widened due to after shocks of earthquake, moisture contents penetrated into cracks and the soil got saturated, which ultimately eroded. Details of species is given in Annexure-IV.

Forest: In the areas affected by the earthquake, standing forests on steep slopes were destroyed by landslides both in NWFP and AJK. Furthermore, many trees were damaged by rock falls. The earth shaking during the EQ was such that some trees simply truncated about two meters above the ground. Apart from these damages, the next most serious danger was of flash floods and more landslides during monsoon. The needs of affected population in terms of fuel and shelter are resulting in further pressure on dwindling forests.

Post earthquake reconstruction further added to forests deterioration both in NWFP and AJK due to high demand of wood for timber in reconstruction and fuel consumption especially during winters. The valuable trees species of *Cedrus deodara* and *Pinus willichiana* were even illicitly used as fuel wood. On the other hand, the communities living close to forest areas have displaced the location of their houses and forest land encroachment increased. Similarly disturbances in forest areas occurred due to quarrying for stones.

- ***Physical-Environment:***

Soil

82. The most visible destruction to physical environment was caused by the landshearing, liquification and slides that continued long after the main earthquake due to frequent, and often severe, aftershocks; siltation of rivers and streams; damage to both natural and man-made water channels; damage to the forest resources due to landslides and rock-falls.

Damage to Mountain Slopes/Landslides: Earthquake exacerbated most existing slides and disturbed slopes and at the same time created numerous new slides and damaged slopes. These slides continue to pose challenges to continuous supply of materials in the affected areas by regularly blocking roads. Land sliding in many areas has washed away entire tracts of agricultural land putting entire communities' livelihoods in jeopardy - as in the case of Hattian Bala, AJK. 18 villages in Muzaffarabad need to be shifted elsewhere due to persistent landslides. GSP surveys have identified 118 active slides in AJK on roadsides alone. A heavy monsoon has resulted in even more slides posing serious constraints on un-interrupted flow of supplies and materials in the affected areas. Even in Muzaffarabad city and its surroundings large cracks are visible in the mountain sides that can lead to more landslides in future.

Debris from Damaged Infrastructure: Earthquake caused massive damage to buildings, roads, irrigation channels, water supply schemes and sanitation schemes, resulting in millions of tons of debris. The accumulated debris can be broadly categorized as, 1) Public Building Debris, and 2) Private Building Debris.

Balakot town was one continuous heap of debris and the town is planned to be relocated. Battagram also has high concentration of debris whereas rest of the affected districts in NWFP have widely scattered debris of public and private buildings. In AJK, all the major towns in the three affected districts suffered heavy damage to both public and private buildings resulting in about 4.86 m.m3 rubble, out of this about 25% is estimated as iron, plastic, wood or other reusable and auction-able material. Similarly in NWFP about 0.427 of debris is present in the area and need management. Safe disposal of debris alone is a major environmental challenge.

Debris Dumping and Rural-Urban Housing Reconstruction: At the same time the earthquake has left huge piles of rubble and debris. While the natural resources are already under serious stress due to earthquake, the reconstruction and rehabilitation of housing, roads, health, education, agriculture, livelihoods and irrigation etc. will further put additional stress on the physical as well as natural environment of the area through the increased use of water, waste generation, solid waste dumping, quarrying for sand and stone, increased transportation of construction material and dumping of debris in dry water courses and along river banks. If not properly managed, there would be pressure on forests for wood and timber for reconstruction of housing. Loss to the agricultural lands and to some extent irrigation system in District Manshera, Abbottabad and some parts of AJK has affected the livelihood.

Air Quality

83. Althogh the whole affected area does not face any problem of importance regard to air pollution due to non-idustrial area and restricted movement of heavy traffic in terrain. In affected districts of AJk as well as in NWFP no industrial zone is established. Therefore, the stationary source of pollution can be ruled out. Increased load of heavy traffic for transportation of construction material may impose a temopary load of air pollution at localized level but it will be reversible due to enrichment of flora and in absence of any other source of air pollution.

Livelihood Activities in the Project Area:

84. Livelihood of the area was mainly depended upon the forestry, for fuel wood and extraction of construction timber, pastures and terraces for livestock, production of fish at commercial level in hatcheries and drinking water from fresh stream and springs. Main hatcheries of District Manshera and Muzaffarabad have suffered losses due to damaged water supply channels. About 253 landslides have been identified close to river or road sides, threatning human life and the life of two great sources of Hydro-Power Generation Reservoirs.

DAMAGES CAUSED AT DIFFERENT LEVELS:

85. As per initial assessment carried out by ERRA and data collected from different stake holders indicates the loses at three levels

a) Infrastructure damages
b) Losses to skilled persons in all addressed sectors
c) Losses to natural environment.

SECTION WISE DATA ANALYSIS:

86. Eight earthquake-hit districts of NWFP and AJK were surveyed. Total number of UCs covered was 46, whereas 2,411 households were surveyed. Total population covered in the surveyed UCs was 19,211. The highest number of population consulted was 5,320 in Muszaffarabad, whereas the lowest was 718 in Kohistan. In AJk , 4 UCs of Bagh, 6 UCs of Muzaffarabad including Neelum Valley, 8 UCs of Poonch, 3 UCs of Abottabad, 6 UCs of Battagram 3 UCs of Kohistan, 12 UCs of Mansehra and 4 UCs of Shangla District were covered under the LEA survey.

Access to Social Amenities

87. 100% of the household surveyed have access to electricity, 78 % of the household have water supply available to them where as 22 % metallic roads. BHUs and trained LHW are available in the areas,facilities like telephone, electricity, gas, water supply and schools are erratic based on the access and distance of the area from the main road. Telephone facilities is available to 28 %, different sources of fuel is available to 85 % out of which kerosene oil is used by 69% of household, and sui gas by only 1 percent, For electricity and heating purposes people use all kinds of sources i.e. kerosene oil, LPG and fuel wood.

TYPICAL FUEL WOOD STOVE

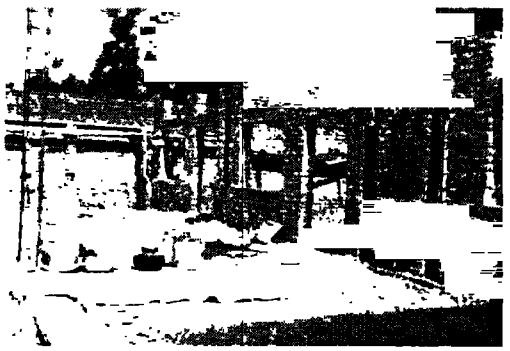
88. Fuel wood is obtained by cutting forest wood. Somehousehold purchase it form the local markets in case of dire need. Sewerage and drainagefacilities are used by 50% of the households. In the whole area there is a minimal presence of VRCs and CBOs. Details are given in the following sections.

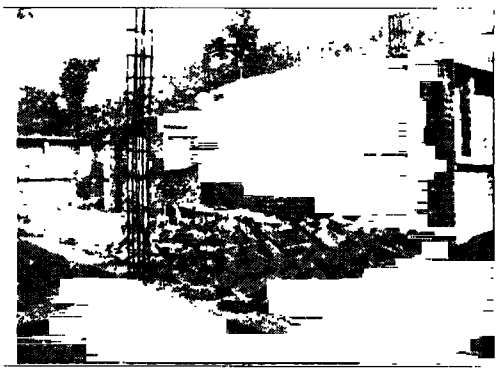
Housing Conditions:

89. Out of the total sample size of 2,411, 10 % of the houses have Kacha living rooms against 26 % of household who have Pacca rooms, rest of the houses use mixed material (Kacha and Pacca) and a large percentage is unknown. Attributed to many cultural and economic factors houses in NWFP are small. House consists of 2-3 rooms each measuring 16x18 ft, where as the total covered area is 32x32 ft. On the other hand AJK has tradition of bigger houses, for heating and insulation purposed most of the houses are double and triple stories in some cases. There are 2-4 rooms in a house; dimensions for each room are around 20x20 ft.

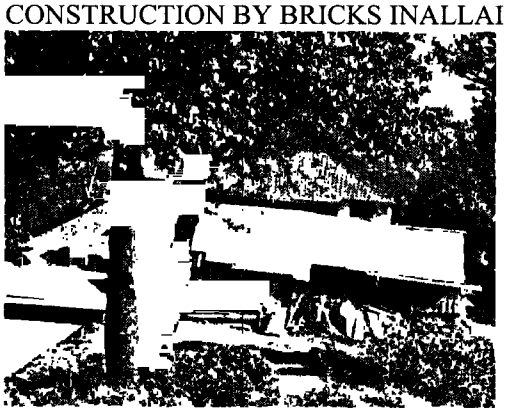
Fig: 5.1 ACCESS TO SOCIAL AMENITIES

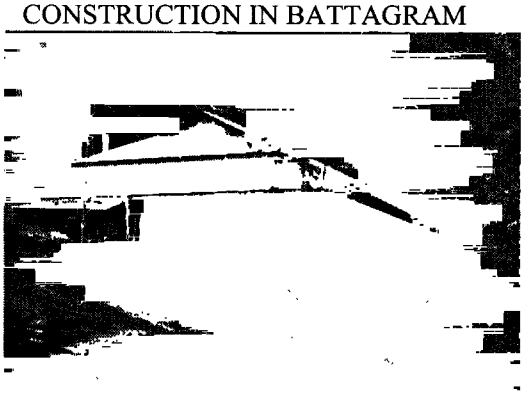
AMENITIES TYPE	HAVE ACCESS	DON'T HAVE ACCESS
Electricity	2329	82
Sui Gas	14	2397
Water Supply	1873	538
School	2118	293
Health Facilities	2170	241
Roads	2283	128
Telephone / Landline	686	1725
Fuel wood	2038	373
Sewerage / Drainage	1205	1206
Kerosene Oil	1660	751
Others/ LPG	508	1903





CONSTRUCTION BY BRICKS INALLAI CONSTRUCTION IN BATTAGRAM



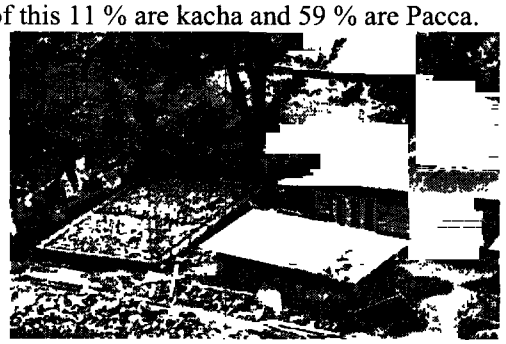


CONVENTIONAL HOUSES WITH NEW INTERVENTIONS OF THE TECHNIQUES

Fig: 5.2 TYPE OF CONSTRUCTION

	1147	116	300	68	6	657
	432	106	195	35	1	95
	177	102	9	4	1	61
	340	36	199	24	3	78

90. About 25% kitchens are Kacha and 45 % are Pacca rest with open cooking area. Kitchen is just a shade without any boundary and in some houses it is also used as a living room in winter season. Landslide affects construction work in the areas like Neelum valley, which is extremely prone to landslides. 58% of animal sheds are Kacha and 5 % are Pacca, rest are mixed and for some construction material was unknown. Animals kept are goats, sheep, cows and buffalos. In 85-90 % of the houses temporary shelters for the animals are made of canopy, CGI sheets and mud. Only 18% of the houses have separate kitchen and 14% have bathrooms, out of this 11 % are kacha and 59 % are Pacca.



CONSTRUCTION ON NEW LOCATION

ANIMAL SHEDS

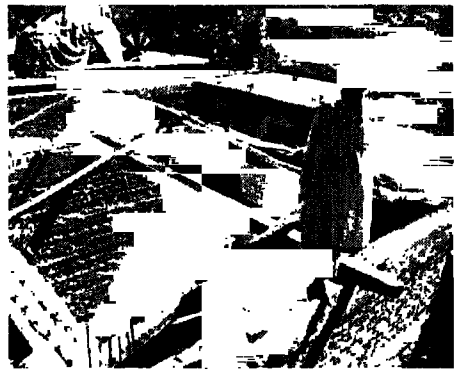
For disposal of excreta 51 % households have constructed drains and excreta goes directly into drains, for 16% of the total houses it goes into septic tanks and for a mere 12 % goes into soak pits, where as 11% is dumped into open dry pits, about 10% have mixed practices.

91. Most of the construction took place in the period of August –October 06 i.e 1215. 497 houses are under construction in the period of February-April 07. 452 houses are prone to land sliding. Still 1369 houses are built on previous locations. 2199 houses have received their 1st housing reconstruction grant, 1497 have received 2nd Housing reconstruction grant, where as 32 houses have received 3rd housing reconstruction grant. As far as the ownership of the houses is concerned, 2210 houses are self owned, 30 are owned by the landlords and only 1 house was reported to be owned by Govt. So far ERRA has trained around 25,343 people in different housing construction skills. 31 % of houses are using self design with ERRA approval, 57% using ERRA approved design. 754 laborers employed on these houses are local, 1284 are outsiders and 1353 are skilled and 568 are trained by ERRA. 995 people were self employed in the construction process, which included both women and men.

Fig: 5.3 NUMBER OF HOUSE CONSTRUCTION STARTED DURING

Duration	Number of Houses
April 2006 - July 2006	57
Aug 2006 - Oct 2006	1215
Nov 2006 - Jan 2007	166
Feb 2006 - present	497
Not Answered	476

GENDER PARTICIPATION IN CONSTRUCTION



SELF SKILLED CONSTRUCTION

Timber /Other Material:

92. Out of the total houses 24 % are made of bricks, 8% with CGI sheets, 10 % with stone masonry, 19% with wood and 10 % with other raw material, rest of the people areusing mixed construction material. This shows that most of the houses are made with brick. In Abottabad a bag of Cement costs Rs. 251 and transportation cost is around Rs. 20/carriage. Sand costs Rs. 1800/cft and each brick costs Rs. 6.00. In Hatkul Batool UC of District Alai, people are mostly doing brick construction. For construction labor comes from Sawat, which costs around Rs. 250/day and masons charge around Rs.450/day. People are recycling raw material of destructed houses for which they have set up small mobile crushing plants to convert stone into gravel which costs Rs. 1200/cft. People are using most of the raw material from their surroundings for free. They extract sand from the river, stone masonry from the mountains; wood and timber from the forest and pay only for labor wages and purchase of cement and stones in some cases. Pine including all its species is being used as construction timber or wood whereas eucalyptus are the economic forests. When asked about cutting trees 8 % replied yes they do cut trees, 75% respondents replied in negative and 17% gave no reply. A total number of 251 trees were cut for construction out of which highest number recorded was in Abbottabad i.e. 70 and the lowest was in Kohistan.

Fig: 5.4 Type of Wood / Trees used in Construction

Type of Tree/wood	Pine	Dalbergia	Others
Abbottabad	140	30	26
Batagram	154		
Mansehra	263	11	20
Shangla	116	9	11
Kohistan	27		
Bagh	82	1	8
Muzaffarabad	411		10
Poonch	46		28
Total	**1239**	**51**	**103**

In Muzafarabad 55 trees were cut. Total type of trees cut for construction were comprising of 1239 Pine trees, 51 Dalbergia and 103 others. Wood is used for making windows and doors whereas timber is utilized in the construction of frame. More timber is consumed in the houses constructed in Muzafarabad due to their double story construction designs.

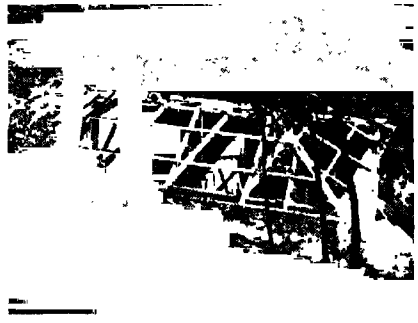


Fig: 5.5 Type of Material for Construction

Material Type	# of Houses
Bricks	573
CGI Sheets	185
Stone Masonry	231
Wood	450
Others	248

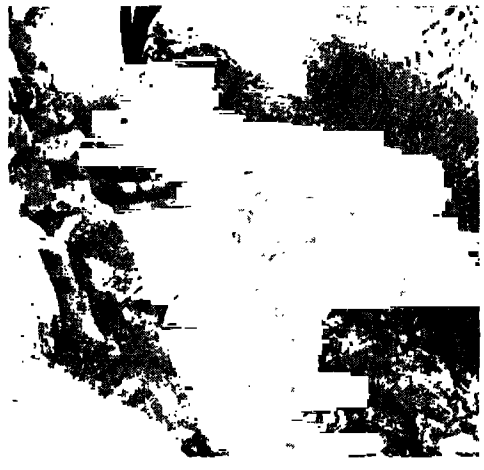
Fig: 5.6 Number of House Holds Cut Trees for Construction

Districts	# of People (Yes)	# of Household (No)	No Answer	# of Trees
Abbottabad	42	225	34	70
Batagram		332		
Mansehra	227	206	90	34
Shangla	46	137	74	52
Kohistan	52	21	21	2
Bagh	33	79	34	29
Muzaffarabad	275	171	28	55
Poonch	80	59	221	9
Total	**713**	**1230**	**468**	**251**

Solid Waste Disposal:

93. Due to the earthquake destruction a total of 2595 MT of debris was produced by surveyed houses; organic, inorganic and animal waste is 8, 7 and 8 MT/day respectively. Approximate waste produce per day is 23 MT. Number of plastic bags used per week is 7768. Out of 2411 household 66 % go for open dumping of waste, for only 1 % corporation services are available, 31 % use garbage as organic fertilizer. A mere 0.3% auctioned or sold the debris, 29% recycled/reused it, 69% dumped it openly. When asked about the knowledge about environmental issues 58% replied yes, 26% accepted their ignorance and 14% gave no answer.

PROMOTED TOILET CONDITIONS



DISCHARGE INTO AGRICULTURAL FIELDS

Fig: 5.7 WASTE PRODUCED FROM HOUSEHOLD

TYPE OF WASTE	WEIGHT IN KGS
Debris	2594751
organic Waste	7730
Inorganic Waste	6942
Animal Waste	8361
Others	10

Fig: 5.8 APPROXIMATE WASTE GENERATE PER DAY

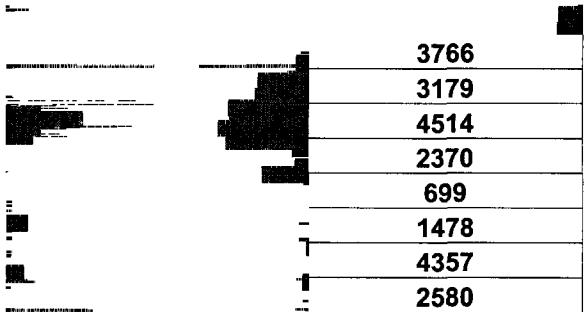


Fig: 5.9 How Waste Materials are Disposed

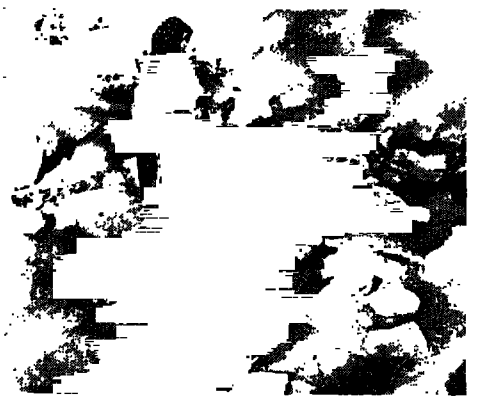
Disposal Site	# of Household	Percentage %
Open Dumping	2067	85.73
Corporation Dumping	33	1.37
Used as organic fertilizer	279	11.57
Any Other	32	1.33

Fig: 5.10 Methods for Disposal of Debris

Disposal Type	# of Household	Percentage %
Auctioned/Sold	9	0.37
Reused	694	28.78
Open dumping	1664	69.02
Others	44	1.82

Water:

94. Water supply schemes are engineered according to the hydrology of any area. In most of the hilly areas Gravity Schemes are introduced and successfully run. Water sprouting from some stream runs down hill through the gravitational pull and there is no machinery involved. In areas where water table is high hand pump are used. In other situations Community Based Water Supply Schemes are introduced in which a water tank and a tap and is installed at some communal places like a mosque, school. Others are Community run/operated water schemes in which CBO construct tanks on streams and install pumping machines and villagers contribute some proportion on monthly basis of the operational and maintenance cost. All three types of water facilities are maintained in the study area.



73 % of the houses use Govt. water supply, 4 % fulfill their water requirements through wells, 4 % of the household fetch water from nearby springs and only 1 % use hand pumps. As far as water quality is concerned, there were no complaints about odor, color or taste. But a serious potential issue could arise due to the open discharge of discreta of the upstream households, which joins the stream water and is being consumed by the household living on slopes. Sometimes if the pipelines are damaged bacteria enters the water with mud and water looks muddy and impure. Under the water borne diseases the instance of diarrhea was reported the highest at 45 %, 2nd highest is cholera 16 % where as dysentery and hepatitis are 5 %.

Fig: 5.11 SOURCE OF DRINKING WATER

Water Source	# of Household
Govt. Water Supply	1748
Wells	103
Springs	89
Hand pumps	16
Any Other	0

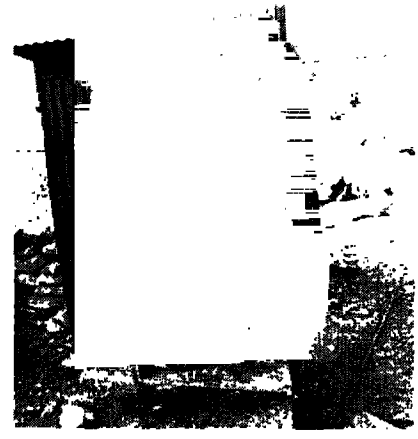
Fig: 5.12 WATER BORNE DISEASES COMMON IN HOUSEHOLD

Disease	# of Household	Percentage %
Diarrhea	1078	44.71
Cholera	405	16.80
Hepatitis	157	6.51
Dysentry	144	5.97
Other	239	9.91

Fig: 5.13 District-wise details of Diseases

District	Diarrhea	Cholera	Hepatitis	Dysentry	Other
Abbottabad	104	125	92	57	69
Batagram	178	1		6	
Mansehra	181	90	58	58	75
Shangla	61	17	4	5	25
Kohistan	43				
Bagh	39	11	3	4	15
Muzaffarabad	369			12	8
Poonch	103	161		2	47
Total	**1078**	**405**	**157**	**144**	**239**

SANITATION:



95. In 71 % of the houses water is discharged into open drains, 9% into sewers and 16 % is openly discharged into agricultural fields. Ultimate disposal site for 13% of the houses are streams and rivers, for 40 % its agricultural fields and for 48 % houses its open discharge. 54 % of households use open latrines, 5 % uses bucket, 23 % flush system and 25 % go to the open fields. Toilets are in the poorest condition. One of the characteristic of most of the hilly areas in Pakistan and AJK is non availability of a proper drainage or sewerage system, the facts about surveyed of UCs are no exception. Waste is discharged in the open fields, which causes mosquito and major health problem to the people. In households where no bathrooms are constructed women wait for the nightfall to go to the field.

Fig: 5.14 Type of Latrines/Toilets

Lartine Type	# of Household	Percentage %
Open	1305	54.13
Buckets	124	5.14
Flush System	566	23.48
Fields	618	25.63

Fig: 5.15 Discharge of Water

Mode of Discharge	# of Household
Open Drains	1719
Sewers	206
Open Discharge	387
Sprinkling	15
Others	27

Fig: 5.16 Disposal of Excreta

Mode	# of Household
Directly in to drains	1220
Septic Tank	378
Soak Pit	294
Open (Dry Pit)	271

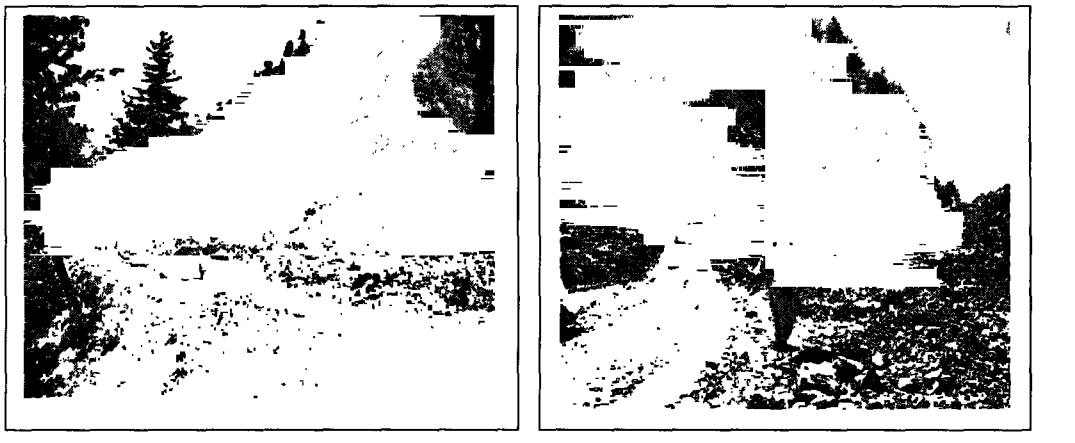
Fig: 5.17 Ultimate Disposal Sites

Disposal Site	# of Household
Stream/Rivers	319
Agriculture Fields	956
Open Discharge	1163
Others	8

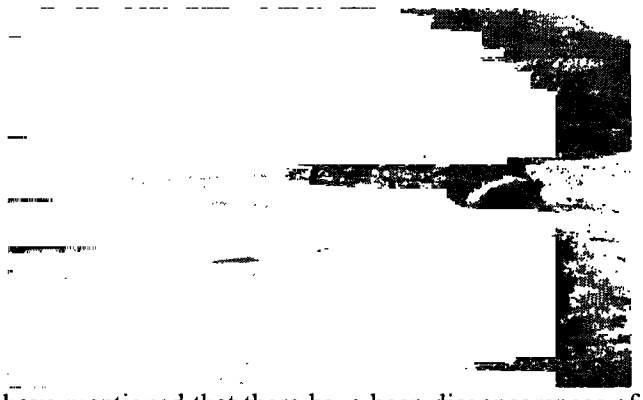
Construction Near Landslides:

96. The most visible destruction to physical environment was caused by the landshearing, liquification and slides that continued long after the main earthquake due to frequent, and often severe, aftershocks; siltation of rivers and streams; damage to both natural and man-made water channels; damage to the forest resources due to landslides and rock-falls; damage to agriculture land - especially the terraced fields; and finally, the huge amount of debris due to fallen public and private buildings. Some serious damage was caused by disposal of debris is the water bodies and heavy monsoon rains resulting into more landslides. The augmented needs for fuel and shelter by affected population in winter season resulted in further pressure on dwindling forests.Unstable slopes continue to slide

following heavy rains, in some cases blocking roads and even at times destroying homes. These households will not be able to rebuild permanent homes in these locations, which leads to issues of land loss, resettlement, and compensation for, or provision of, alternate land. Earthquake exacerbated most existing slides and disturbed slopes and at the same time created numerous new slides and damaged slopes. These slides continue to pose challenges to continuous supply of materials in the affected areas by regularly blocking roads. Land sliding in many areas has washed away entire tracts of agricultural land putting entire communities' livelihoods in jeopardy - as in the case of Hattian Bala, AJK. 18 villages in Muzaffarabad need to be shifted elsewhere due to persistent landslides. GSP surveys have identified 118 active slides in AJK on roadsides alone.



97. A heavy monsoon has resulted in even more slides posing serious constraints on uninterrupted flow of supplies and materials in the affected areas. Even in Muzaffarabad city and its surroundings large cracks are visible in the mountainsides that can lead to more landslides in future. Major landslide in Hussari Nullah has imposed another challenge in the rehabilitation process put about 400 cft debris in River Kunhar. The landslides triggered by the earthquake and its associated aftershocks have adversely affected streams, rivers and other water bodies. The debris flows have had a significant impact on the distribution of sediments in stream and river channels, either by depositing sediment in the water channels or by transporting sediment farther downstream, often to great distances. In addition, they have contributed to partial blockage of channels, local channel constriction below the points of landslide entry and may even have shifted channel configuration or blocked streams altogether. Increased sediment could also result in channel scour, large scale redistribution of bed-load gravel, and accelerated channel erosion and bank undercutting.



98. Communities have mentioned that there have been disappearances of some streams and new appearance of others. While these issues will have significant localized impacts on water quality and quantity and fish kills, which will affect communities and livelihoods, increased sediment transport will also contribute to accelerated siltation of the Mangla reservoir. Monitoring sediment transport and other adverse impacts, particularly during the spring snow melts, and taking necessary remedial measures is critical for sustainability of livelihoods of the local community. Wider economic impacts may result from reduced storage capacity at the Mangla reservoir. In NWFP the number of landslides was 109 whereas in AJK the number was 121. In NWFP the hardest hit area by landslides is Tandol in UC Banna of District Alai with 13 priority areas. Other areas in NWFP are Balakot and Pashto in Alai with 7 landslide priority areas. In AJK the hardest hit areas by landslides in Chakoti with 40 priority sites followed by Rawlakot and Azad Pattan.

TABLE.5.1 OVERALL LAND SLIDES IN AJK AND NWFP

DESCRIPTION	NWFP	AJ&K	REMARKS
Total length of the Roads	132 Km	690 Km	All these slides are located near active roads. Survey of Kaghan Valley has not been carried out (Balakot-Kaghan: 62 Km).
Total No. of Slides	109	121	
Total No. of Priority-I Slides	56	78	
Total No. of Priority-II Slides	58	32	
Total No. of Priority-III Slides	05	11	
Total Volume of Landslides	20.14 mm3	18.13 mm3	

Source ERRA Environmental Strategy

CHAPTER 6
ENVIRONMENTAL MANAGEMENT PLAN

This chapter provides the environmental management plan (EMP) for the ERC project activities in Rural Hosing Sector and identifies the roles and responsibilities of the executors, implementers and Monitors.

EMP Objectives

99. The EMP provides the delivery mechanism to address the adverse environmental impacts of the ERC project (Rural Housing) during its execution, to enhance project benefits, to ensure that the WB safeguard policies are adequately adhered to, and to introduce standards of good practice to be adopted for all project works. The EMP identifies the potential environmental impacts that the ERC project may cause. The EMP also identifies feasible and cost-effective measures that may reduce potentially significant adverse environmental impacts associated with the rural housing to acceptable levels. Specifically, the EMP performs the following functions:

- identifies and summarizes all anticipated significant adverse environmental impacts;
- describes each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate;
- estimate any potential environmental impacts of these measures; and
- provide linkage with any other mitigation plans required for the project.

EMP Components

100. The present EMP includes the following components:

- Institutional Arrangements
- Mitigation plan
- Monitoring plan
- Communication and documentation
- Environmental trainings
- Schedule and cost estimates.

These components are provided below.

Institutional Arrangements:

101. The institutional arrangements and organizational structure to implement the present EMP and mitigation measures (discussed later in the Chapter 7) already exist. These are briefly described below.

Environmental Protection Cell: The Environmental Protection Cell, headed by the Program Manager, has been established at ERRA, Islamabad. It functions include overall management of the environmental aspects of all of the ERRA's programs. The Cell advises other ERRA sectors viz. health, rural / urban housing, education and others on all matters regarding reconstruction & rehabilitation and environmental management. It also conducts environmental trainings for its own staff and that of its partner organizations. The

implementation of the present EMP will be the responsibility of Environmental Protection Cell.

Environmental Planning Cells at PERRA and SERRA level: At the provincial/state level, environmental management responsibility lies with the Environmental Planning Cells that have been constituted in PERRA and SERRA, for ERRA's activities in NWFP and AJK, respectively. Coordination with the line departments with regard to environmental issues also included in the responsibilities of these planning cells. For environmental activities of the ERC project, and implementation of the present EMP, the Environmental Planning Cells will provide support to the Environmental Protection Cell, particularly where line departments are involved (such as the Forestry Department). They will also be involved in the occasional environmental monitoring of all project activities in their respective jurisdictions.

Environmental Coordinators at DRU level: The environmental coordinators have already been appointed in each of the DRUs. They carry out the environmental activities at district level and other associated activities in their respective district. For the ERC project as well, these coordinators will be assigned environmental monitoring responsibilities detailed in this EMP with the assistance of stakeholders identified in EMP.

ENVIRONMENTAL MITIGATION PLAN

102. As part of the environmental assessment of the ERC project (Rural Housing), a screening matrix was developed - tailored specifically to the project - focusing the potential environmental impacts that are likely to arise as a result of the project activities. The matrix examined the interaction of the project activities with various components of the environment. The impacts were broadly classified as physical, biological and social, and then each of these broad categories further divided into different aspects. The potential impacts thus predicted were characterized in the matrix as follows:

- High negative (adverse) impact,
- Low negative impact,
- Insignificant impact,
- High positive (beneficial) impact,
- Low positive impact, and
- No impact.

103. The negative impacts predicted in this manner were the 'unmitigated' impacts. Appropriate mitigation measures were recommended as part of this EMP, thus reducing the occurrence possibility and severity of the potentially adverse impacts.

The screening matrix is provided in Exhibit 1. The negative impacts and the associated mitigation measures to reduce if not eliminate these impacts are tabulated in Exhibit 2 and discussed below.

Construction on Hazardous Sites

The rural housing reconstruction on hazardous sites (primarilty those sites which are prone to land sliding) is a major issue requiring urgent attention. Though relocation of these settlements is not included in the WB-funder ERC project, some safeguards should nevertheless be included in the present EMP to provide some bare minimum protection from any future loss of lifr and property. In this regard, the PO staff and AI teams will

educate the communities to avoid such sites. These teams during the monitoring operations will collect data on any reconstruction activities carried out/going on at such sites.

Construction of Houses

104. The rural housing reconstruction activities can result into the following impacts:

- Soil erosion and/or land sliding
- Surface water contamination
- Loss of / damage to natural vegetation/trees
- Damage to cultivation
- Blocked access
- Safety hazards
- Damage to infrastructure
- Public health risks.

105. The above impacts can be avoided by following the appropriate control measures. For this purpose, the AI teams and POs will educate the communities and subsequently conduct monitoring for the following aspects:

- Avoiding places having excessive slope,
- Avoiding places having risk of land sliding or soil erosion
- If necessary, incorporate corrective measures to stop/control land sliding/soil erosion.
- Avoid releasing contaminated effluents on the ground/in the water bodies.
- Avoid cutting any trees for house construction
- Avoid damage to cultivation fields/crops
- Avoid blocking any roads, routes or tracks.
- Take safety precautions, particularly for children
- Avoid damaging any infrastructure.

Sourcing of Construction Material

107. The following four issues are associated with the sourcing of construction material for rural housing reconstruction activities:

- Cutting of trees to obtain timber
- Stone quarrying.
- Transportation of the material from other areas
- Re-use of the material from Debris

Although it has been observed that the communities are reusing the timber salvaged from their damaged/destroyed houses, and the need for tree cutting is not very extensive particularly in case of few areas of NWFP, in parts of AJK tree cutting has been report as mentioned Fig 5.6.

The AI teams, POs and Environmental Protection Cells through awareness raising of the communities and during subsequent monitoring of the reconstruction activities, will ensure the following.

- Enforcing tree cutting ban.
- Reporting any illegal tree cutting.
- If new timber is needed, use already-cut timber available at the timber depot.
- If unavoidable, only dead trees to be cut.
- Educate people about timber depots.

108. The AI teams and POs will ensure – through awareness raising of the communities and environmental monitoring - implementation of the following control measures to forestall any negative impacts associated with stone quarrying:

- Maximize the use of stones salvaged from the damaged/destroyed houses
- If needed, obtain stones from any government-approved stone quarry
- Otherwise obtain stones from areas not prone to land sliding/soil erosion. Redress the area after obtaining stones.

Debris Disposal

109. Inappropriate disposal of debris from the destroyed houses can cause blockage of natural drainage of the area, contamination of water bodies, damage to the cultivation fields, blockage of local routes, and public nuisance. In the rural areas this problem is not very significant, since most of the material is being salvaged and reused for reconstruction. The the AI teams and POs will ensure implementation - through community awareness raising and environmental monitoirng - of the following measures to further reduce the intensity of the problem,:

- Promote use of left over debris for construction works such as for making floors.
- The debris are not thrown in river, streams or nullahs (seasonal or perennial)
- If possible use the left over debris in any other nearby construction, such as road repairs, culverts or pavements.

Disposal of Excess Construction Material

110. Inappropriate disposal of excess construction material, such as sand and stone crush can cause impacts similar to the ones discussed above for debris disposal (given that cement and steel will not be thrown away because of their high value). The following measures will forestall any potential adverse impacts:

- Explore the possibility of returning the excess material to the supplier
- If possible use the left over construction material in any other nearby construction, such as road repairs, culverts or pavements.
- Any left over material should in no case be thrown in rivers, streams or nullahs (seasonal or perennial). It should be spread over the ground without affecting the natural drainage, cultivation fields, public places or local routes.

The PO staff and AI teams will ensure implementation of the above measures through community awareness raising and monitoring of the resconstruction activities.

Domestic Solid Waste Disposal

111. Inappropriate disposal of domestic solid waste results into a host of problems, including contamination of soil and water, odor, and public health risks associated with using contaminated water and spread of disease vectors. In the absence of any municipality services for garbage collection and disposal in the rural communities, this issue needs particular attention.To address the above problem, ERRA has launched a separate WATSAN program in the earthquake-affected areas. The Environmental Protection Cell will ensure that the domestic solid waste management is appropriately covered under this program.

Disposal of Sewage

112. Much like the domestic solid waste discussed above, inappropriate disposal of domestic sewage can also result into a host of problems, including contamination of soil and water, odor, and public health risks. In the absence of any municipality services for sewage collection and disposal in the rural areas, this issue needs particular attention.
To address the above problem, ERRA has launched a separate WATSAN program in the earthquake-affected areas. The Environmental Protection Cell will maintain close coordination with this program for better community coverage, awareness raising of the communities and environmental training of the related staff.

ENVIRONMENTAL MONITORING

113. The objective of environmental monitoring during the ERC project implementation is to provide information about key environmental aspects of the project, particularly the environmental impacts of the project and the effectiveness of mitigation measures. Such information will enable ERRA and the Bank to evaluate the success of mitigation as part of the ERC project supervision, and allow corrective actions to be taken when needed. Therefore, the present EMP identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed during the study and the mitigation measures described in the EMP.

The following types of monitoring are planned for the rural housing project:

- Compliance Monitoring
- Effects Monitoring
- External Monitoring

These are described below.

Compliance Monitoring: The compliance monitoring of the project activities is principally a tool to ensure that the environmental control measures identified in the previous section are strictly adhered to during the project activities.
Various aspects of the compliance monitoring will be to:

- Systematically observe the project activities, such as reconstruction.
- Verify that the activities are undertaken in compliance with the EA and EMP.
- Document and communicate the observations to the concerned person(s).
- Maintain a record of all incidents of environmental significance and related actions and corrective measures.
- Maintain contact with the communities, solicit their views and concerns, and discuss them during the site meetings.

The compliance monitoring plan is provided in **Exhibit 2.** It identifies the parameters to be monitored and assigns responsibilities for monitoring. Mostly, the compliance monitoring will be carried out by the PO staff and Environmental Coordinators, with the help of simple checklists, prepared on the basis of the mitigation and monitoring plan provided in Exhibit 2.

Effects Monitoring: In addition to the compliance monitoring, effects monitoring will be undertaken during the project activities, with the overall objective of proper management of

environmental risks and uncertainties. Broadly, effects monitoring will have the following objectives:

- To verify that the impacts of the project activities are within acceptable limits, thus establishing credibility (public assurance)
- To immediately warn the relevant departments within ERRA of unanticipated adverse impact or sudden changes in impact trends so that corrective actions can be undertaken, which may include modifications in the proposed activities, or the inclusion of modified or additional mitigation measures
- To provide information to plan and control the timing, location, and level of certain project activities so that the effects are minimized.
- To facilitate research and development by documenting the effects of the proposed project that can be used to validate impact-prediction techniques and provide a basis for more accurate predictions of future projects.

114. The effects monitoring will mostly be conducted by the Environmental Coordinators (and during the external monitoring discussed later in the Chapter). The effects monitoring plan is also provided in Exhibit 2. It identifies the parameters to be monitored and assigns responsibilities for monitoring. In addition, personnel from the Environmental Planning Cells and Environmental Protection Cell will also occasionally visit the project sites, in order to conduct the effects monitoring, and to identify any unforeseen and/or residual environmental impacts.

External Monitoring (Third Party Validation): In addition to the compliance and effects monitoring discussed above, ERRA will engage an independent consultant to carry out external monitoring on periodical basis. The objectives of this external monitoring will be to ensure that:

- the EMP is being adequately implemented,
- mitigation measures are being implemented,
- the Compliance and Effects Monitoring are being conducted,
- environmental trainings are being conducted, and
- complete documentation is being maintained.

115. The external monitoring consultants will periodically visit the sites (on six monthly basis), examine the documentation maintained, interview key site staff, make spot checks, take photographs where necessary, and interact with the communities. After each external monitoring visit, the consultant will prepare a monitoring report and submit to ERRA. The report will include the observations made during the visits, highlight non-compliances observed, if any, salient information obtained from communities, and make recommendations. The Environmental Protection Cell will develop the ToR for this assignment.

In addition, the WB supervisory missions will also conduct occasional monitoring of the environmental aspects, in order to ascertain the environmental performance of the project.

Environmental Monitoring Tiers

116. The environmental monitoring will be carried out at three different tiers. These are described below.

First Tier: At the field level, the environmental monitors will carry out the monitoring functions, as described above and tabulated in Exhibit 2.
Second Tier: At the second tier, the Environmental Planning Cells and Environmental Protection Cell will carry out the monitoring (mostly effects monitoring) during their occasional field visits.
Third Tier: At the third tier, monitoring will be carried out by the M&E Wing ERRA, external monitor and WB's supervisory missions.

ENVIRONMENTAL TRAININGS

117. Environmental trainings help to ensure that the requirements of the EA and EMP are clearly understood and followed by all project personnel throughout the project duration. The primary responsibility for providing training to all project personnel is that of the ERRA's Environmental Protection Cell. The Environmental Planning Cells will also provide assistance in this regard. However for some organizations, such as POs, the Cell's responsibility will be to ensure that such trainings are conducted by the Pos, for their staff.
Various types of environmental trainings need to be conducted for different project personnel. These are listed below.

- Environmental awareness for all relevant staff (particularly staff from Housing Reconstruction Program, HRCs, DRUs and POs),
- Environmental awareness for communities (can be implemented through the relevant POs),
- Environmental monitoring training for the environmental monitors and Environmental Planning staff.

118. The training plan is provided in Exhibit 3. These trainings need to be provided on an on-going basis, with repeat-trainings conducted according to the need.
The Environmental Protection Cell at ERRA has already initiated the environmental trainings. The Cell will now schedule and conduct further trainings for the remaining project duration. In order to enhance the effectiveness of the trainings, each training session should be followed by training evaluation and trainees' evaluation, to be conducted with the help of questionnaires, built along with the training modules.

COMMUNICATION AND DOCUMENTATION

119. An effective mechanism for storing and communicating environmental information during the project is an essential requirement of the EMP. The key features of such a mechanism are:

- Recording and maintenance of all information generated during the monitoring in a predetermined format.
- Communicating the information to a central location.
- Storing raw information in a central database.
- Processing the information to produce periodic reports.

Compliance Monitoring Reports: As described under the environmental monitoring, the compliance monitoring will be carried out with the help of checklists developed on the basis of the mitigation and monitoring plan (Exhibit 2). The checklists will be filled by the environmental monitors, and the filled checklists will be sent to the Environmental

Planning Cells. Here these checklists will be used to develop periodic environmental reports. These reports will summarize the results of the environmental monitoring, and highlight the non-compliances reported. These reports will be shared with all relevant departments, such as DRUs, HRCs, POs, housing team and Environmental Protection Cell. These reports will also be made available to WB.

Effects Monitoring Reports: The effects monitoring reports will be developed on the basis of the monitoring visits carried out by the Environmental Planning Cells and Environmental Protection Cell. These reports will document the field observations, any left-over or unforeseen environmental impacts observed, any residual impacts identified, and corrective actions recommended. The observations in these reports will be augmented with photographs. These reports will be shared with all relevant departments, such as DRUs, HRCs, POs, housing team, Environmental Planning Cells and Environmental Protection Cell. These reports will also be made available to WB.

External Monitoring Reports: The external monitoring consultant will develop a comprehensive report after each external monitoring assignment. The report will include the implementation status of EMP, status of various monitoring reports and documentation, status and documentation of environmental trainings, field observations, any left-over or unforeseen environmental impacts observed, any residual impacts identified, and corrective actions recommended. The observations in these reports will be augmented with photographs. These reports will be shared with all relevant departments, such as DRUs, HRCs, POs, housing team, Environmental Planning Cells and Environmental Protection Cell. These reports will also be made available to WB.

Environmental Training Reports: After each environmental training session, a brief report will be developed, which will include the training module, names of the participants, names of the trainers, training evaluation, trainees' evaluation, and any recommendations.

End-of- Project Report: At the end of the project, the Environmental Protection Cell will prepare the end-of-project report, which will provide an overall assessment of the environmental performance of the project as well as EMP implementation, summarize all the environmental reports described above, lessons learnt, and recommendations for any future project of similar type. This report will also be shared with all the key stakeholders within and outside ERRA.

IMPLEMENTATION SCHEDULE

120. The EMP implementation will follow the reconstruction activities in various parts of the earth quake affected areas. The environmental monitoring will be a continuous function, and its schedule will be developed by each respective environmental monitoring team. Similarly, the monitoring visits by the Environmental Planning Cells and Environmental Protection Cell will also be planned and schedules made. The Environmental Protection Cell will prepare the schedule for the external monitoring. Theexternal monitoring will be carried out once in every six months.

A schedule will also be made for the environmental trainings discussed earlier in the chapter. This will be prepared by the Environmental Protection Cell in consultation with

other relevant departments, such as the Environmental Planning Cells, the housing team, DRUs, HRCs and others.

COST ESTIMATES

121. The key elements of the environmental management cost of any project usually include the following:

- Cost of environmental personnel
- Cost of environmental mitigation measures
- Cost of environmental monitoring
- Cost of environmental trainings.

These costs for the ERC project are discussed below.

Environmental Personnel: All the environmental personnel in the Environmental Protection Cell, Environmental Planning Cells, and environmental monitors in the DRUs already exist, and their costs included in the existing budgets. Hence the EMP implementation will not incur any additional cost related to the environmental personnel.

Mitigation Measures: The environmental mitigation measures will be the integral part of the reconstruction activities, hence these will not incur any additional cost.

Environmental Monitoring: The environmental monitoring will be implemented through the environmental monitors, Environmental Planning Cells and Environmental Protection Cell. Currently cost of these personnel is being covered through other UNDP.

The cost of each external monitoring assignment is estimated to be about Rs. 500,000. This can be finalized once the ToR of the external monitoring is developed by the Environmental Protection Cell. The total budget for external monitoring would be about Rs. 2,000,000, assuming there would be four external monitoring assignments during the remaining project duration.

Environmental Trainings: The environmental trainings will also be developed and imparted by rural housing sector and Environmental Protection Cell. Hence these will result in additional cost which will be incurred from capacity building component of ERC. In addition the travel expenses associated with these trainings will be estimated, and the Environmental Protection Cell will be responsible for this cost estimation, as part of the finalization of the training plan. An estimated amount of Rs 1,800,000 is envisaged for this purpose, to cover traveling and associated expenses over the remaining project duration (one training campaign every quarter; 6 quarters; Rs 300,000 per training campaign).

Exhibit 1: Screening Matrix (Un-mitigated)

	Physical					*Biological*		*Social and Socioeconomic*											
	Soil Erosion / Contamination	*Air Quality*	*Surface Water Quality*	*Groundwater Quality*	*Water Availability and Consumption*	*Natural Vegetation and Forest*	*Wildlife*	*Land Acquisition*	*Agriculture*	*Blocked Access*	*Noise and Vibration*	*Safety Hazard*	*Employment/Earning Opportunities*	*Infrastructure*	*Public Health (Health hazard for project staff and communities)*	*Aesthetic Value*	*Sites of Archeological, Historical or Cultural Significance -*	*Impacts on Indigenous People*
Construction of Houses	-2	0	-1	0	0	-1	0	0	-1	-1	0	-1	0	-1	-1	-1	0	N
Timber Extraction	-1	0	0	0	0	-2	0	N	0	0	0	0	0	0	0	-1	0	N
Debris Disposal	-1	0	-1	70	0	-1	0	N	-1	-1	0	0	0	0	0	-1	0	N
Disposal of Excess Construction Material	-1	0	-1	0	0	-1	0	N	-1	-1	0	0	0	0	0	-1	0	N
Domestic Solid Waste Disposal	-2	-1	-2	-1	0	-1	0	N	0	0	0	0	0	0	-2	-2	0	N
Disposal of Sewage	-2	-1	-2	-2	0	-1	0	N	0	0	0	0	0	0	-2	-2	0	N

Key: -2: High negative impact; -1: Low negative impact; 0: insignificant/negligible impact; +1: low positive impact; +2: High positive impact, N: no impact.

Exhibit 2: Mitigation and Monitoring Plan

	Aspects / Impacts	Mitigation Actions	Monitoring Actions	Responsibility		Timing
				Execution	Monitoring	
A. Construction of Houses						
1	Soil erosion/land sliding caused by excavation and construction activities	Determine the scale/distribution of the possible impact through NADRA Database (which identifies houses on landslide prone sites), at a union council level – to better inform efforts towards monitoring and managing the impact. Point out to the house owner of the possible danger of land sliding and land erosion. Recommend corrective measures, such as retaining wall and/or plantation.	Evidence of training of the housing inspection/monitoring teams on environmental aspects. Evidence of advice provided to the house owners regarding the risk of land sliding/soil erosion, and corrective measures.	AI teams / HRC/PO staff	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	During construction
			Record any soil erosion and/or land sliding (take photograph, note the location)	-	Same as above.	During construction
2	Any tree removal for house construction	Advise the house owner against cutting any tree through: (a) a central Public Information Campaign (PIC) by ERRA; (b) beneficiary sensitization through behavioral change campaigns (BCC) through the HRCs and POs. Improved demand monitoring and management through: (a) regular data collection (full or sample basis) on the actual extent of use of recycled timber	Evidence of relevant components in PIC. Evidence of relevant components in BCC. Evidence of improved demand management. Evidence of training of the housing inspection/monitoring teams on environmental aspects. Evidence of advice provided to the house owners against cutting any trees.	AI teams / HRC/PO staff	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	During construction

	Aspects / Impacts	Mitigation Actions	Monitoring Actions	Responsibility		Timing
				Execution	Monitoring	
		extent of use of recycled timber in housing reconstruction by AI teams; (b) determination of the number of beneficiaries reconstructing through timber-based options, such as timber frame, dhajji and bhattar; (c) ensuring adequate supplies vis-à-vis estimated demand through official timber depots (ERRA M&E Logistics department does regular supply-demand monitoring for all reconstruction materials).	Record any tree cutting (take photograph, note the location)	-	Same as above.	During construction
3	Any effluents released to ground	Advise the house owners to dispose the waste in a manner not to pollute the water streams	Evidence of training of the housing inspection/monitoring teams on environmental aspects. Evidence of advice provided to the house owners against polluting any water body.	AI teams / HRC/PO staff	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	During construction
			Record any release of pollutants to ground/water body (take photograph, note the location)	-	Same as above.	During construction

	Aspects / Impacts	Mitigation Actions	Monitoring Actions	Responsibility		Timing
				Execution	Monitoring	
4	Blocking or damage to any road/track; damage to any infrastructure; blocking/damage to cultivation field	Advise the house owners to avoid blocking/damaging roads/tracks, damaging any infrastructure or affecting agricultural activities.	Evidence of training of the housing inspection/monitoring teams on environmental aspects. Evidence of advice provided to the house owners against damaging/blocking any roads/tracks/cultivation fields.	AI teams / HRC/PO staff	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	During construction
			Record any damage or blocking of roads, tracks, infrastructure or cultivation fields (take photograph, note the location)	-	Same as above.	During construction
B. Sourcing of Construction Materials						
5	Loss of trees	Ensure that the salvaged wood is used for housing reconstruction. Enforce tree cutting ban. Report any illegal tree cutting. Obtain timber from timber depots. Educate communities about timber depots. Cut only dead trees, if unavoidable.	Evidence of training of the housing inspection/monitoring teams on environmental aspects. Evidence of advice provided to the house owners against cutting of trees.	AI teams / HRC/PO staff	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	During construction
			Record any tree cutting (take photograph, note the location)	-	Same as above.	During construction
		Implement tree cutting ban.	Evidence of coordination.	Forest Department	Environmental Planning Cells.	During construction

	Aspects / Impacts	Mitigation Actions	Monitoring Actions	Responsibility		Timing
				Execution	Monitoring	
6	Stone quarrying	Promoting (and allaying fears on) the use of salvaged stone by beneficiaries opting for the stone-masonry option for housing reconstruction, through PIC and BCC. If needed, obtain stones from any government-approved stone quarry If quarrying is unavoidable, ensure that it does not lead to soil erosion/land sliding.	Evidence of awareness raising of the housing inspection/monitoring teams on environmental aspects. Evidence of advice provided to the house owners against stone quarrying.	Rural Housing sector, AI teams / HRC/PO staff	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	During construction
			Record any stone quarrying (take photograph, note the location)	-	Same as above.	During construction
C. Debris Disposal						
7	Blockage of natural drainage/local routes	Ensure that the salvaging and reusing of the debris is maximized. Promote use of left over debris for construction works such as for making floors. If possible use the left over debris in any other nearby construction, such as road repairs, culverts or pavements.	Evidence of training of the housing inspection/monitoring teams on environmental aspects. Evidence of advice provided to the house owners regarding recycling of debris, and appropriate disposal of left over debris.	AI teams / HRC/PO staff	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	During construction
			Record any inappropriate debris disposal (take photograph, note the location)	-	Same as above.	During construction

	Aspects / Impacts	Mitigation Actions	Monitoring Actions	Responsibility		Timing
				Execution	Monitoring	
8	Public nuisance	Ensure that the left-over debris is disposed in a manner not to cause any public nuisance, affect cultivation fields, block local routes or become an 'eye-sore'.	Evidence of training of the housing inspection/monitoring teams on environmental aspects. Evidence of advice provided to the house owners against inappropriate disposal of left over debris.	AI teams / HRC/PO staff	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	During construction
			Record any inappropriate debris disposal (take photograph, note the location)	-	Same as above.	During construction
D. Solid Waste Disposal from Houses						
9	Contamination of soil and water Public health issues	Awareness raising and capacity building of the communities, through PIC and BCC. Ensure that the communities adopt appropriate waste disposal techniques.	Evidence of capacity building and awareness raising of the communities under the WATSAN program, and through PIC and BCC.	WATSAN Sector / Rural Housing	Environmental Planning Cells	After construction
			Record any inappropriate disposal of domestic solid waste from houses (take photograph, note the location)	-	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	After construction
E. Waste Effluents from Houses						

	Aspects / Impacts	Mitigation Actions	Monitoring Actions	Responsibility		Timing
				Execution	Monitoring	
10	Contamination of soil and water Public health issues	Awareness raising and capacity building of the communities and relevant staff, through PIC and BCC. Ensure that the communities adopt appropriate waste effluent disposal techniques.	Evidence of capacity building and awareness raising of the communities by under the WATSAN program through PIC and BCC.	WATSAN Sector / Rural Housing	Environmental Protection Cell	After construction
			Record any inappropriate disposal of waste effluents from houses (take photograph, note the location)	-	Environmental Coordinators. Environmental Planning Cells and Environmental Protection Cell during occasional field visits.	After construction

Exhibit 3: Environmental Training / Awareness Raising

Type of Training / Contents	Participants	Responsibility	Notes
Environmental Awareness (Basic concepts; why environment is important for people; basic do's and don'ts regarding construction, including specific issues such as techniques for maximizing use of recycled wood and stone by beneficiaries)	Communities	POs	Environmental Protection Cell to ensure that these trainings are conducted.
Environmental Awareness (Basic concepts; why environmental is important for the project; salient features of EMP; roles and responsibilities of various personnel/departments for environmental management)	Rural Housing Sector, particularly the AI teams, AI Management, DRUs, HRCs, Inspection Teams	Environmental Protection Cell and Environmental Planning Cell	-

Environmental Awareness (Basic concepts; why environmental is important for the project; why environment is important for the communities; salient features of EMP)	PO staff	POs	Environmental Protection Cell to ensure that these trainings are conducted.
Environmental Management (EMP; environmental monitoring, environmental reporting)	Environmental Planning Cells Environmental Coordinators AI Teams.	Environmental Protection Cell	

CHAPTER 7
CONCULSIONS AND RECOMMENDATIONS

This chapter provides the consolidated conclusion drawn after random sampling and data analysis of rural area and provides the recommendations for effective implementation of EMP and strengthening of capacities for compliances and monitoring.

CONCLUSION

122. The problems of the earthquake victims were further compounded by the harsh winters which begen soon after the tragedy. However, the government tried its best to mitigate the sufferings of the people.The nation rose to meet the challenge and people from all over the country contributed to the relief effort. The international community also responded promptly. Owing to the well coordinated relief effort none died of cold and hunger.The huge relief effort continued till March 31, 2006 when it was officially declared to be over. By the time the relief was aover almost all the afftected population was under some temproray shelter. In the meanwhile, ERRA finalized its rural housing reconstruction strategy and started surveying the damages sustained by the private houses.

123. Under the limited environmental assessment survey about 43 union councils of 8 districts were visited. The survey form also contained questions about civic facilities.Through the survey it transpired that facilities like electricity, schools, hospitals, water supply, roads and kerosene oil are easily accessible for most of the people. Natural gas is only available in some parts of Mansehra district, some people use LPG as feul while about 99% people use wood as fuel for their cooking purposes.

124. About 56% of the owners have reconstructed their houses at the old locations while 44% have shifted their homes to new locations for varied reasons. In some cases the old locations have been rendered hazardous, while in some cases the owners just shifted to better and more accessible locations. As per the survey report only 452 of 2411 newly reconstructed houses are prone to landslides. Most of the damage in October 2005 earthquake was due to the fact that many homes had been built in areas prone to landslides, and the designs and materials were not were not earthquake-resistant. ERRA may develop a policy in this regard and ban reconstruction at the locations prone to landslides.

125. Survey teams reported that access roads to various locations are either badly damaged or very narrow along the dangerous landslides. On such narrow roads landslide debris further slows down the reconstruction. In some cases the families living jointly have preferred to live in separate houses after the earthquake. ERRA would only provide housing grant for a house. Still many have mustered their own resources to have separate homes after the earthquake. This means that more area is now covered by houses than it was before the earthquake.

126. ERRA has set up 11 housing reconstruction centres in quake hit areas and experts are available in these centres to provide technical assistance regarding reconstruction of housing units. Such centres are working as training schools where assistance is being provided to the people of quake-hit areas. Survey data shows that almost 75% people constructed their houses in accordance with the design parameters prescribed by ERRA. In addition, some other people are seeking guidance from the NGOs working in their localities. The NGOs are only dissiminating the design parameters which ERRA prescribed. However, the villagers do not have much idea about ERRAs coordination with the NGOs they think that the NGOs are working independently. Construction material hubs have been established in the affected areas by ERRA to provide construction materials at controlled rates.

127. The survey shows that 44% household complained about Diarrhea due to unhygenic drinking water. More serious is the fact that such complaints are coming-up in the areas having Government Water Supply schemes. Therefore, it is suggested that village wise data on hygienic water may be shared with WATSAN sector of ERRA and respective Union Councils for appropriate action. It was noticed during the survey that almost 92% of the reconstructed houses do not have proper latrines / bathrooms. About 52% of the households use open type of latrines, 5% using Buckets, 23% using fields like agriculture lands and only 20% household use flush system.

128. Disposal of solid waste is further degrading the natural resources. In most cases, in the rural areas, the debris is still lying open. Cutting of trees for reconstruction of houses in rural areas is another problem highlighted by the survey. Survey teams noticed that illegal cutting of trees is underway at Poonch, Mansehra, Muzaffarabad and Kohistan. In the Private forests (Guzara forests) trees are cut with the permission and knowledge of the forest departments. Besides some illegal tree cutting has been noticed in government owned forests.. Out of 2,411 household 713 accepted that illegal tree cutting was going on for reconstruction of rural houses while 1230 did not agree. About 468 people said that they were cutting trees for the reconstruction of their houses. It is estimated 4 to 8 trees are cut for an average house. As already mentioned forests are also being consumed as fuel.

RECOMMENDATIONS

129. Following are the recommendations for safe and environmental friendly reconstruction in rural areas which need to be implemented through a comprehensive EMP as proposed in chapter 6:

- Proper collection and disposal of debris
- Illegal cutting of trees should be monitored and stopped through respective Forest Departments of AJK and NWFP
- Alternative solution of fuel wood should be worked out
- Clean Drinking Water through Government Water Schemes should be made available for safety and health of the children living in these areas
- Proper latrines may be incorporated in the ERRA rural housing designs.
- Environmental Awareness may be initiated through various sources like meetings, workshops at UC level, mosques at village levels, etc.
- Environmental Assessment needs to be carried out on recurring basis, once every year, covering all reconstruction & rehabilitation activities.
- Dedicated environmental coordinator should be appointed at DRU level for monitoring of rural reconstruction activities.

Training and Capacity Buildings

130. Based on the primary data collection and findings of the random sampling, it has been observed that detailed trainings need to be carried out for all stakeholders and training programmes need to be developed for integration into following areas. Based on each findings and 4 major areas of concern mentioned in Aidmemoire the detailed training plans will be worked out in consultation with stakeholders.

- Environmental Awareness for Communities and POs.
- Environmental Trainings for AI Teams, AI Management, DRU, Rural Housing sector.
- Trainings on EMP and Environmental Monitoring for Environmental Coordinators, EPCs.

DISTRICT WISE PROFILE OF THE PROJECT AREA:

In addition to the human loss and injuries around 600,000 houses were destroyed /damaged rendering around 3 million shelterless. Out of the 8 earthquake affected Districts Mansehra, Muzaffarabad and Battagram were the worst affected. The magnitude of losses both human and material in Mansehra, Muzafarabad & Battagram, were immense. In Mansehra, Tehsil Balakot was 100% destroyed while Allai Tehsil in Battagram District was the second worst hit area, which was 95% destroyed.

Table-3.5. DETAILS OF AFFECTED DISTRICTS

AFFECTED DISTRICTS OF NWFP	AFFECTED DISTRICTS OF AJK
Abbottabad	Muzaffarabad
Manshera	Neelum Valley
Battagram	Bagh
Shangla	Rawalkot
Kohistan	

DISTRICT PROFILE- ABBOTTABAD:

Abbottabad is an importnat city of the NWFP province of Pakistan. It is 4120 feet (1256 m) above sea level, and is located 63 miles (101 km) from Rawalpindi, 217 km from Peshawar and 52 miles from Kohala Bridge. The city is spread over an area of 1,967 square kilometers (179,654 ha). It has a total population of 880,666 (157,904 urban and 722,762 rural). The average annual growth rate is 1.82 percent and district's population density is 448 persons per square kilometers. For every 100 women there are 100.2 men in the district. Average household size in the district is 6.4 persons. There are 46 union councils and 920 villages in the district. Placed in the active monsoon zone, the district is heavily dependent on rains/snowfall and experiences high levels of humidity. Abbottabad is bordered by the Mansehra district in the North, the Muzaffarabad and Rawalpindi districts in the East, the Haripur and Rawalpindi districts in the South and the Haripur district in the West.

The literacy rate in the district accounts to 56.6 percent (males 74.5 percent as against 39.1 percent for females). There are 1072 health institutions established in the district. For every 1,912 people there is one doctor available in the district while for 3,448 people there is one nurse. Around 641 percent of the households are using piped water while the access to water in far flung rural area is poor. Separate or shared kitchen, bathroom and latrine are available in 53.3 percent, 42.1 percent and 34.3 percent of the housing units respectively. There is an

acute problem of accessibility to road infrastructure as on an average there is 0.29 Km road/sq. Km of the district. About 75 percent housing units have electricity facility while 78.2 percent households use wood as a source of cooking fuel. Unemployment rate in the district is 31 percent. More than 51 percent district's population lies below poverty line and 30 percent population belong to middle-income group. In 1999-2000, the total area under cultivation was 63,424 hectares and the area under forests was 83,201 hectares, far below acceptable standards. The land use and cropping intensity were 83.5 percent and 88.3 percent respectively.

Extent of Damages due to Earthquake:

As per the data provided by the Provincial Relief Commissioner at NWFP, reported deaths were 521, 767 were injured and number of damaged houses was 49,745. The nine highly affected UCs were Dalola, Boi, Bakote, Pattan Kalan, Namal, Berote, Kukmong, Pluck and Beerangali located across River Jehlum and river Kunhar. Rest of the UCs were partially affected. Bakot, Namal and Birot are the most affected UCs with affected population of 5,365, 2,499 and 2,186 respectively.Under the initial survey by the district government, a total 49,745 families were provided with compensation @ Rs. 25000/- for immediate shelter. A detailed survey of the quantitative data was carried out by AIT and PPAF in the declared UCs of all Tehsils of District Abbottabad. The most severely damaged UC was Bakot including 5365 partially or completely damaged houses. Other most affected UCs are Namal and Berot.

Reconstruction Plan:

During the relief phase financial assistance amounting to Rs. 25,000 was given for immediate shelter to all affectees whose houses were identified as fully or partially (un-livable) damaged. For progressive disbursement of financial assistance for reconstruction of private housing, partner organizations were selected for damage assessment survey. For 49 union councils and cantonment area of district Abbottabad, the PO was Pak Army. Whereas PPAF conducted a door to door assessment in union council Boi, Kukmong and Dalola. To ensure reconstruction of private houses as per approved designs of ERRA, housing resource centers have been established besides selecting partner organization to impart training to artisan, beneficiaries and awareness. In chapter 6 the sampled UCs of District Abbottabad have been presented as sample of the reconstruction plan and issues related to the environmental impacts.

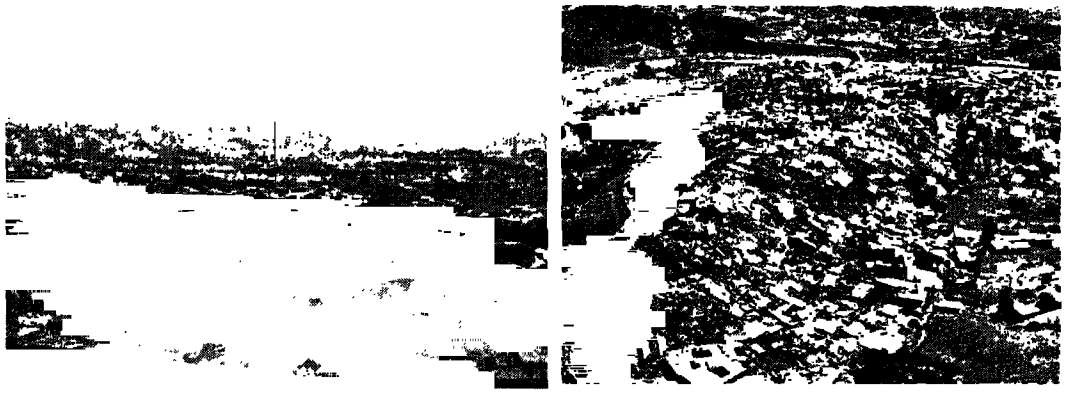
BRIEF DISTRICT PROFILE-MANSEHRA

Mansehra district is also located in the province of NWFP of Pakistan. The total area of the district is 4,579 square kilometers, while the district houses a total population of 1,152,839 (61,376 urban and 1,091,463 rural). The average annual growth rate is 2.4 percent and district's population density is 252 persons per square kilometers. For every 100 women there are 98 men in the district. Average household size in the district is 6.7 persons1. Oghi, Balakot and Mansehra are three tehsils of the district whereas there are 58 union councils and 1,160 villages in the district.

The literacy ratio in the district accounts to 36.3 percent (males 50.9 percent as against 22.7 percent for females). There are 1,042 health institutions established in the district. For every 8,362 people there is one doctor available in the district while for 33,447 people there is one nurse. Around 55 percent of the households are using piped water while the access to water in far flung rural area is poor. Separate or shared kitchen, bathroom and latrine are available in 21 percent, 21 percent and 9.8 percent of the housing units respectively. There is an acute

problem of accessibility to road infrastructure as on an average there is 0.18 Km road/sq. Km of the district. About 49 percent housing units have electricity facility while 94 percent households use wood as a source of cooking fuel.

Unemployment rate in the district is 28.4 percent. More than 56 percent district's population lies below poverty line and 30 percent population belong to middle-income group that is living hand to mouth.



In 1999-2000, the total area under cultivation was 80,747 hectares and the area under forests was 332,252 hectares, far below than acceptable standards. The land use and cropping intensity were 83 percent and 137 percent respectively. Average per hectare yield of major crops such as maize, rice, and wheat is 1,718 kgs, 2377 kgs, and 1,554 kgs respectively. The details of UCs are given in Appendex-III.

Reconstruction Plan

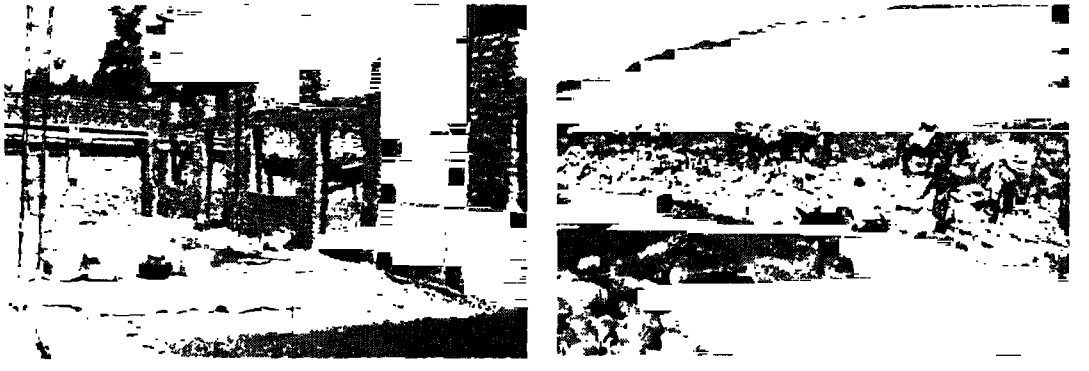
As per policy and strategy initially the housing grant of Rs. 25,000/- was given to all affectees of the area. District Manshera faced the worst clamity where the whole town of Balakot was converted into debris leaving behind the highest death toll. It is also laocted near the epicenter of the earthquake, therefore adjacent rural area also severed sever loses of lives. The most adversely affected UCs in district Mansgera are Mahnderi, Kawai, Hunghrai, Kaghan and Garihabibulah. As Balaokot is located on fault line no construction has been allowed and a new town has been planed near to Manshera and Balakot for residential purpose. However, people will be allowed to carry on commercial activities in the old town. Due to heavy landslides new locations have also been chosen for reconstruction of the houses. Still temporary camp is operational in that area named Jabba camp, where people have been settled affected either by loss of land or displacement. In surveyed UCs the construction has been strated but on different scale due to after shocks and severity of Balakot. Owner driven approach has also been adopted in this area, people are being provided with construction material either as grant, or at the construction material hubs that have been established where they can purchase on subsidies rates. Manshera is the largest populated district of Hazara and have three major forest divisions which have also been affected.

BRIEF DISTRICT PROFILE- BATTAGRAM:

District Battagram is situated at latitude 340 -40 and longitude 730 -1, surrounded by Kohistan District in the North, Mansehra District in the East, Kala Dhaka tribal area in the south and Shangla District in the West. District headquarter is Battagram town at a distance

of about 75 Kilometers from Mansehra on the Silk Highway. The total area of the district is 1,301 square kilometers while the district houses a total population of 307,278 (all is rural). The average annual growth rate is –0.58 percent. Average household size in the district is 6.6 persons. Alai and Battagram are two tehsils of the districts whereas there are 20 union councils and 400 villages in the district. The District is mostly mountainous with peaks rising above 4,000 meters with thick forests. However, fertile plain areas exist in Nindhyar, Tijri Deshan, Batamori, Banna and Rashang valleys. Plenty of springs and streams flow through out the District providing water for drinking and irrigation. Climate in Battagram is moderate in summer and severe cold in winter.

The literacy ratio in the district accounts to 18.3 percent (males 29.4 percent as against 6.5 percent for females). There are 412 health institutions established in the district. For every 12,344 people there is one doctor available in the district while for 80,236 people there is one nurse. Around 471 percent of the households are using piped water while access to water in far flung rural area is poor. As per information gathered in 1998 Housing Census, the facility of drinking water inside the house is available to only 24 % of the housing units. It is highly alarming that all the water supply schemes in District Battagram are open surface schemes and during rainy season, water becomes totally muddy unfit even for purposes other than drinking. Only one filtration plant has been installed in the whole District, which is also not functional. It is worth mentioning that natural fountains are spread throughout the District, water of which is also used for drinking purposes.



There is an acute problem of accessibility to road infrastructure as on an average there is 0.17 Km road/sq. Km of the district. About 42 percent housing units have electricity facility while 97 percent households use wood as a source of cooking fuel.

Poverty is prevalent in the district and is assuming menacing proportions with the passage of time. Unemployment rate in the district is 41 percent. More than 65 percent of the district's population lies below poverty line and 27 percent population belong to middle-income group. Most of the working population, i.e., 54.61 percent, is engaged in "Agriculture, Forestry. Hunting and Fishing, the remaining 45.39 percent are in non-agricultural industries. Out of those in non-agricultural industries i.e. 14.38 percent are engaged in '"Community, Social and Personal Services" followed by 5.70 percent are engaged in "Whole Sale and Retail Trade and Restaurants and Hotels"'. The persons engaged in " 'Transport, Storage and Communication" are 2.35 percent of the total working population. However, surprisingly a significant number of locals are residing and working in Thailand, Malaysia and Middle East and have brought prosperity to the area.

In 1999-2000, the total area under cultivation was 24,173 hectares and the area under forests was 37,983 hectares2, far below than acceptable standards. The land use and cropping

intensity were 47.5 percent and 125.2 percent respectively. Average per hectare yield of major crops such as maize, rice, and wheat is 1,305 kgs, 1,912 kgs., and 1,531 kgs respectively. There are rich forests in the area. Most of them belong to the locals but are protected by Government ban on tree cutting. The entire area of the District is fertile and gives good crops. The major crops are Maize, wheat and rice. Maize is cultivated in 46,359 acres; wheat is cultivated on about 19,902 acres and rice on 5,821 acres. The main common sources of lighting are Electricity, LPG (low pressure gas) and kerosene oil

The hard hit Union Councils of Tehsil Battagram were Shamlai, Batamori, Thakot, Rajdhari, Peshora, Paimal Sharif, Ajmaira, Battagram whereas that of Tehsil Allai were Rashang, Sakargah, Biari, Pashto, Bathkool, Banna, Jambera, Bateela. The loss of human lives in Battagram was 3,564 whereas 3,799 Persons were injured. According to information provided by the District Government, in Battagram Rs. 344.100 million have been paid the compensation for deaths and Rs. 74.025 million as compensation to the injured in the District.

Reconstruction Plan:

In Battagram, private housing sector suffered a huge loss, a total of 67,411 houses were damaged. The UCs with most damaged houses are Hatkul Baktool, Battamohri and Shamlai with affected population of 4,592, 4,394 and 3865 respectively. 67,411 beneficiaries have received an amount of Rs. 3.643 billion as of 05 December 2006 under the rural housing program. Same UCs were identified as sample for survey and data collection. In order to ensure availability of construction material for housing, construction material hubs have been established throughout the District. Out of 54 hubs, 35 are located in Battagram where the reconstruction activity has gained considerable momentum. Training in seismically resistant reconstruction has been planned and delivered through Housing Reconstruction Centers in the affected areas. In Battagram some 14,566 individuals received training in reconstruction skills namely plumbing, carpentry, masonry and as electrician. Beside a number of models houses have been reconstructed to encourage private owners to adopted housing designs developed and introduced by ERRA through NESPAK. The strong partnership have ben established in the area with Sungi Development Foundation, Swiss Development Cooperation and PPAF as POs for training and disbursement of the grant. Most of the construction is being carried out with Bricks in areas of Hatbathkool due to transportation from Swat through KKH and easy access.

DISTRICT PROFILE-SHANGLA:

District Shangla, the newly born district of NWFP, is surrounded by district Batgram in the east, district Swat in the west, district Kohistan in the north and district Buneer in the south. It is spread over an area of 1,586 sq. km with 36% cultivated and 69% non-cultivated area including 32% forest (P & D Report Shangla, 2006). The district consist of two tehsils namely Alpurai and Puran with sub tehsils Besham, Chakisar and Martung respectively. It has 28 union councils and 111 villages. The topography of the district is dominated by high mountains in western extremities of Himalaya and narrow valleys. The temperature in May is 30 C maximum and 17 C minimum. While in November it ranges from 20 C maximum to 0 C minimum.

Farming is one of the major income-generating activity largely dependent on rain water but only 2% of the cultivated area depends on irrigation channels. People grow wheat, Maze, and potatoes most commonly for local consumption. Telephone is the only mode of network communication. Discontinuous electric supply to the whole area renders the population to

revert to conventional means of heating through wood. Roads are in bad condition, mostly unpaved and damaged at frequent intervals. According to an estimate the district's population is 512,212, but the 1998 census report shows that the population of Shangla district is 434,563 that is 2.5% of the total population of NWFP. The annual growth rate is 3.27% with an average household size of 8 persons per family. The percentage of male and female population both in rural and urban areas is 51.496% and 48.503% respectively. The literacy rate is around 14.5% while the difference in percentage of male and female is dramatically paradoxical[r2]. According to the present estimate number of households is 64,391. According to a rough estimate more than 70% housing units were made of stone, unbaked bricks with wooden roofs. While 30% of housing units were made of baked bricks with Reinforced Concrete Construction roofs. According to a rough estimate the disability (physical, mental and emotional) is very high in the district but no clear picture is available.

On October 8, 2005 in the district of Shangla about 444 casualties, 2,072 injured cases, and 24,585 fully damaged houses have been reported. According to an estimate 96% households were affected in the district. The most affected UCs of the District is Maira where 3,245 beneficiaries have been surveyed and identified to be assisted, these beneficiaries are entitled to partial or full housing reconstruction grant. In Opel UC the number of beneficiary is 2,149 and Danai is another most affected UC where number of identified beneficiaries is 1,893. Almost all 28 roads within 5km to 30km range were badly damaged. To provide support to the affectees of the earthquake 658.770m rupees had been disbursed as a payment of compensation (P & D Report Shangla, 2006). Damage was caused to all sectors including housing, health, education, infrastructure, environment etc.

Reconstruction Plan:

In district Shangla, 38.18% of housing units were fully damaged and 57.66% were partially damaged in the earthquake. As per ERRA Housing reconstruction strategy plan for reconstruction of fully and partially damaged houses were made. 588.425 million rupees have been paid to 23537 affectees so far whose houses were fully damaged. Same construction strategy viz. owner driven have been adopted here. Construction material and labour are coming from Swat. The details of survey are given chapter 6. The details of UCs\ surveyed in Shangla are attched at Appendex-IV.

DISTRICT PROFILE OF KOHISTAN:

The name of the District has been derived from the name of the area that is Kohistan, which means the land of mountains. The District lies between 34° 54′ and 35° 52′ north latitudes and 72°43′ and 73°57′ east longitudes. It is bounded on the north and north-east by Ghizer and Diamer Districts of Northern areas, on the south east by Manshera District on the south by Battragram District and on the west by Shangla and Swat Districts. Kohistan means the land of mountains. Infact there is hardly any plane land; it is all mountains huge and massive. It could be correctly described as all mountains dotted with land. The Indus River cuts through the heart of Kohistan from start to end. Thus divide the District in to Hazara Kohistan and Swat Kohistan. The two areas have different history and culture. The two areas were merged in 1976 to form Kohistan District.

Before Kohistan came into be known as District, Hazara Kohistan was looked after by Political Tehsildar, Oghi. The Tran Indus (Swat Kohistan), though inaccessible was however affectively ruled by ex-wali of Swat through a network of his "Hakims" and "force". It had six Teshils Viz Ranolia, Dubair, Pattan, Seo, Jashoi and Karang. The narrow Indus valley in

Kohistan is flanked by two mightiest ranges of the world. On the left bank are the offshoots of the Himalayas while on the right bank are the offshoots of the Karakorum. The Ranges reaching Kandia valley from the north are considered to be the offshoots of the Hindukash, thus the three mightiest ranges of the world coverage on Kohistan. The highest mountain in the District is about 17 and 18 thousands feet while many peaks range in height from 6 thousands to 7 thousands feet.The Indus is the main river flowing through the heart of Kohistan District.

The District is warm in summer and very cold in winter. There is heavy snowfall and temperature generally falls below freezing point. Monsoon reaches the lower parts of Kohistan i.e. Banked, Batera, Ranolia, Dubair and Jijal only. In the upper hilly areas of the District Deodar, Kail and Fir spruce forests are available at a large scale while the lower areas have oak trees in abundance. Harvesting of forest by Forest Development Corporation had not been allowed by the people hence a number of forest societies have been established for the exploitation of forests.

Over 140 birds' species have been recorded in Palas sub-division including seven of the eight "restricted range" west Himalayan species. There is scarcity of land, yet people practice agriculture where it is possible. Only Kharif crops are grown in high altitude lateral valleys which remain very cold in winter. Irrigation is not systematic. Almost all the valleys have gushing streams. After agriculture, the second most important source of sustenance in Kohistan is livestock. The only route for commerce and trade from the District is the Karakorum Highway.

Majority of the people are engaged with agriculture. A number of people do business. Most of the people depend upon their share in forest. Ratio of education is very low; however the tendency towards jobs in Government functionaries is increasing day by day. The population of Kohistan District according to 1998 census report is 4,72,579 and an average annual growth rate of 0.09%. The population wise detail of each Teshils is as Dassu 1, 84,746 out of which Male 1, 02,800 & Female 81, 8, 80. Pattan 1, 22,244 out which male 66,746 and female 55,465 while Palas has 1, 65,613 Population out which male are 92,330 & female are 73,283. The total area of the District is 7,4,92 sq km having population density 63.1% per square kilometer. The average household size is 6.4 persons. The whole District consists of rural population. According to 1998 census it was found that 53.53% of the population aged 18 years and above have obtained National Identity Cards which means that almost half of the population age 18 and above are still not processing National Identity Card. It was 66.41% for male and 43.07% for female.

According to 1998 census report, there were 73,622 house holds among the total households Dassu Sub-division had 27,362 house holds, Pattan 20,350 while had Palas 25,910 house holds.More than 49% of the housing units in Kohistan District were single room houses and 26.29% of the housing units had two rooms. Houses of 4 rooms are 6.79% while 4.79% houses are 5 and more rooms.

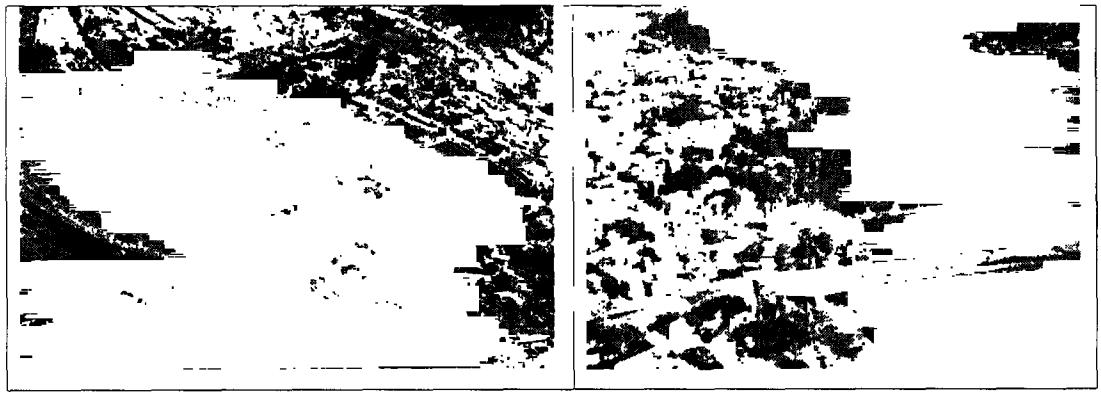
Reconstruction Plan:

In district Kohistan, private housing suffered a huge lose including about 485 damaged houses, 6,323 destroyed and 2,646 partially damage with percentage of 35%, 46% and 19% respectively. The reconstruction plan of District Kohistan is a part of the overall Housing Reconstruction Strategy. ERRA with the assistants of Army carried out a housing survey and engaged NADRA to establish a data base that was used as the mechanism for screening the

applications for eligibility and for progressive disbursement of financial assistance for the reconstruction of private housing. During the relief phase, the first installment of Rs.25000 was made to assure housing compensation to all those people whose houses were identified as fully or partially damaged.

Brief District Profile-Muzaffarabad

Muzaffarabad district consists of Muzaffarabad city, which is the capital of Azad Jammu and Kashmir, and suburban areas. The district is administratively divided into two tehsils; Muzaffarabad and Hattian. 38 Union Councils, 581 Revenue villages and 79 Patwar Circles. Muzaffarabad is located at the confluence of Jhelum and Neelum rivers. The terrain is mountainous interspersed with narrow valleys. There is abundant natural beauty guarded by the main range of Pir Panjal. Areas in the extreme north are higher with peaks ranging above 5000 meters, including two prominent glaciers Shonthar and Sharwal. Areas below 4000 meter are covered with coniferous trees. The mean maximum and minimum temperatures during the month of July are about 35c and 23c; and in January 16c and 3c respectively. Main crops are maize, wheat, rice, oil seed, potato, pulses and variety of vegetables. Besides, the area is famous for fruits such as apple, walnut, pear, plum and apricot.



The two rivers passing through the valley, Jehlum and Neelum, originate from Indian occupied Kashmir. There is no extensive canal system and farming is largely dependent on rain water and small channels connected to perennial water sources. The district is blessed with rich forests which covers 59% of the area and is a major source of income.

People of Muzaffarabad have diverse means of livelihood. Farming, forestry and livestock rearing and poultry farming are the main occupations, particularly among rural households; besides, ponies and donkeys are kept for carrying load to heights. Due to the topography of the area, it is not possible to establish large industrial units, however, cottage industry is thriving; mainly carpet weaving, furniture making, wood carving, garment making and embroidery work. There are a few textile centers which produce bed sheets and coarse cloth. Employment in government offices and in the army as well as overseas employment is quite common. In-country seasonal migration for employment is also practiced by large number of able-bodied males. Muzaffarabad is also the main trade centre of AJK.Muzaffarabad is connected with other districts of AJK and Pakistan by road and by air. As per 1998 Census report – pre EQ) there were 813 kms of metelled roads and 758 km of fair-weather roads. Most of the reads in hilly areas are prone to frequent land-slides, especially during the rainy season. Special Communication Organization (SCO) operates an extensive telephone network

in the district and all main towns in the district have telephone connectivity. Most of the villages and towns are quite well serviced in terms of electricity.

According to the 1998 Census, Muzaffarabad district had a population of 745.75 thousand and an average annual growth rate of 2.80%. The average household size was 7.1 persons both in the rural and urban areas. Some 86.35% population lived in rural areas. The sex ratio in rural and urban areas of the district was 104.25 and 120.78 respectively, indicating that male proportion was much higher in urban areas compared to the rural areas. The disabled persons constituted 3.15% of the population of the district.The literacy rate among male and female was 63% and 29% respectively. There was very slight difference between rural and urban literacy rates. The labor force participation rate was also higher in urban areas i.e. 35% as compared to 31% in rural areas. According to 1998 Census report; there were 101,940 housing units in district Muzaffarabad; 88,388 (86.71%) in rural areas and 13,552 (13.29) in urban areas. One room housing units constitute 12% in rural and 17% in urban areas. As for the type of construction, 29% rural and 79% urban housing units were built with baked bricks, blocks or stones whereas 63% rural and 18% urban housing units were built with un-backed bricks. Between 4-5% were built with wood and / or bamboo. In Muzaffarabad, private housing suffered a huge loss as 89% house structures were totally destroyed whereas 9% got damaged and only 2% remained in livable condition. Keeping in mind the fact that urban Muzaffarabad had 78% baked bricks, blocks and stone houses, the loss also indicates structural design weaknesses in the building of private housing that could not sustain the seismic shock

Reconstruction Plan:

The loss of human lives in Muzaffarabad was 35,803. 23,138 persons were injured. The total affected population was estimated as 715,371. According to information provided by the AJK Government, a total of Rs.3.3381 billion has been paid as compensation for deaths and injuries in Muzaffarabad as of 05 December 2006. It includes Rs. 0.4530 billion for the injured, 2.699 for single death in a family and 0.1861 for multiple deaths.
ERRA with the assistance of army carried out a Housing Survey and engaged NADRA to establish a database. During the relief phase, the first installment of Rs. 25,000 was made under housing compensation to all those people whose houses were identified as fully or partially damaged. In Muzaffarabad, 141,736 beneficiaries have received an amount of Rs.3.643 billion as of 05 December 2006 under the program. In order to ensure availability of construction material for housing, construction material hubs have been established throughout the state. Out of 54 hubs, 35 are located in Muzaffarabad where the reconstruction activity has gained considerable momentum.

Training in seismically resistant house reconstruction has been planned and delivered through Housing Reconstruction Centers in the affected areas. In Muzaffarabad some 14,566 individuals received training in reconstruction skills namely plumbing, carpentry, masonry and as electrician. Besides, a number of model houses have been reconstructed to encourage private owners to adopt housing designs developed and introduced by ERRA through NESPAK.

DISTRICT PROFILE OF BAGH:

The Bagh District is bounded on the north by Muzaffarabad, on the east by Indian held state of Jammu & Kashmir and on the south by Poonch District and on the West by Rawalpindi. Bagh was given the status of District in 1987 with its three sub-division or Tehsils, namely;

Bagh, Dhirkot and Haveli, according to 1998 census, had a population of 181,063, 102,347 & 111,633 respectively. The total covered area of district Bagh is 1368.Sq. Kilometer, with estimated population 0.485 (Million project on the basis of 1998 Censes). The density of population is 329/Sq.Km. while growth rate is 2.00% with an average House Hold Size of 7.4. In Bagh most of the population, 94% lives in rural areas.While on the other as compared to other districts of AJK its urban population is 6% with sex ratio of 101 males / 100 female. The literacy rate of Bagh is significantly high as compared to urban population viz.60%. There are 699 Kms of Mettaled road and 900Km fiar weather roads. District Bagh has 03 Tehsil, 27 Union Councils with 208 villages. It has two town committees of Dhirkot and Kahutta with one municipal committee. Total Houses including rural and urban are 53,275 (as per to 1998 census).

Reconstruction Plan:

During the relief phase financial assistance amounting to Rs. 25,000 was given for immediate shelter to all the affectees whose houses were identified as fully or partially (un-livable) damaged. Partner organizations were selected for damage assessment survey. Malot, Irja, Chamyati, Makhyala, Dhirkot, Rangla, Badhal, Sharif, Bhont, Bhaiyan, Bhedi, Islam Nagar Jaglari and Bir Pani union councils were severely damaged. Owner driven strategy has been adopted. To ensure reconstruction of private houses as per approved designs of ERRA, housing resource centers have been established besides selecting partner organization to impart training to artisan, beneficiaries.

DISTRICT PROFILE OF RAWALKOT/SUDHNUTI:

District **Poonch** or **Punch** popularly known as mini Kashmir is the smallest in area and the remotest district of AJK. It takes its name from the city of Poonch – the headquarters of the Raja of Poonch before 1947 which is now in the Indian held Jammu and Kashmir. The present headquarters of the district is Rawlakot city. Total area of the district is 855 square kilometers. Poonch district is bounded by Bagh district in the north, by Sudhnuti in the south. It shares borders with occupied Kashmir in the east and Pakistan in the west. Total population of the district according to 1998 census stood at 412,000 which was projected at 490,000 in 1996.

Poonch district is a hilly area with an average elevation of about 2000 meters above the sea level. The mountains in the district are part of the Pir Panjal range. Tolipir is the highest peak in the eastern mountain regions of the district. The Jehlum River flows from north to south and makes the western boundary of the district. The Poonch River originating from the Pir Panjal range in the occupied area of Jammu and Kashmir and flows along the south eastern boundary of the district. Kehan nalla, Ranger nalla, and Hajira nalla are notable streams which are mostly flood streams. Climate of the district varies with the altitudes of the area. The average annual precipitation is about 1800 millimeters.

According to the 1998 census, Poonch district had a population of 411.04 thousand with an average annual growth rate of 2.24 percent. Average household size was 7.6 and 8.00 persons in rural and urban areas. About 86.84 percent of the population lived in rural area and average annual growth rate of that component was 1.74 percent. While urban population constituted 13.16 percent of the total population with an average growth rate of 7.52 percent. The sex ratio between male and female is 101.93 and 104.34 in rural and urban areas respectively. Disabled persons constituted 2.61 percent of the total population whereby it was 3.08 and 2.13 percent in male and female population respectively. The literacy ratio of the district was 67.22 percent with 72.10 for urban and 66.45 percent in rural areas. The literacy rate among male was 80.23 as compared to 54.04 percent for female. There were 53,694 housing units in

the district as per statistics of 1998 census. (46,976(87.49 %) rural and 6,718(12.51%) urban). 97.65 % of these housing were occupied by tenants. About 54.27 % housing units were built by baked bricks/ blocks and stones with cement bonding while 42.88 % of the houses were built by unbaked bricks with earth bonding. The wooden category stood at 1.00 % and the un-specified category of material used was 5.09 %. The predominant material used for construction of roof in the district was wood log/ bamboo by 60.84% while 27.15% of housing units used cement/ iron-sheet.

Reconstruction Plan:

ERRA with the assistance of army carried out a housing survey and engaged NADRA to establish a data base. In Poonch district 52,615 beneficiaries have received an amount of Rs. 1382.875 [r3]as on March 2007 under the initiative. For the purpose of compensation payments 48,701 MOUs were signed in Poonch and Sudhnoti. As per latest reports almost all cases have received the second installment of Rs.-75,000. Third tranche has been disbursed to majority of beneficiaries. In order to ensure availability of quality construction material on controlled rates construction material hubs have been established in the district.Four hubs are located in the Poonch district out of these two main Hubs are located in Rawalakot Town while two mini hubs are located in Khali Draman and Abbaspur.Training in earthquake resistant house reconstruction is on going through Housing Reconstruction Centers (HRCs) of UN-Habitat and NRSP training centers in the district. Village level committees on voluntary basis of notables are formed to sensitize the general public about ERRA housing reconstruction policies and guidelines. These committee members are trained at HRCs. In Poonch district more than one thousand individuals have received training in reconstruction skills like plumbing, carpentry, masonry, and as electricians. A number of model houses have been reconstructed as demos to encourage private owners to adopt housing designs developed and introduced by ERRA.

Most of the forested area of AJK falls in this region. Both areas are [r4]known for their scenic beauty and attract large number of local and international tourists during the summer season. Both areas are rich in natural resources but also very vulnerable to environmental degradation. The earthquake apart from causing huge losses to life and property has also resulted in considerable damage to the already fragile bio- physical environment. Road network has been severely damaged, mountains have been cleaved apart, land-sliding has, terraced fields have been damaged and forested areas have suffered enormously. This damage continued after the earthquake as a result of after shocks, flooding and heavy rain. 322,250 acres of forested land across AJ&K and NWFP was damaged.

APPENDIX-II

UNION COUNCILS OF DISTRICT ABBOTTAABD

As per provincial govt. notification No PEA/1(8)2005 dated 20th June 2005

S/NO	UNION COUNCIL	PATWAR CIRCLE	NAME OF MOUZZIAT (HALQA PATWAR)
1	**DALOLA**	DALOLA	Dalola, Dabban, Naroka
2	**BOI**	BOI	Boi, Bandi Samad, Barbeen, Batangi, Diddal, Nakka,Pal, Rankot, Tori
		SAMBLI DHERI	Sambli Dheri, Bandi Hamza, Bandi Pahar, Chak, Gali Mohri, Phogran
3	**KUKMONG**	KUKMONG	Kukmong, Kothiala, Pattan Kalan
4	**NAMBAL**	NAMBAL	Nambal, Majuhan
5	**PATTAN KALAN**	P/ KALAN	Pattan Kalan
		SIALKOT	Sialkot, Bandi Saraha, Banota, Chamiali, Khokhriala, Larri
6	**BAKOT**	BAKOT	Bakot
		MOOLIA	Moolia, Sangal
7	**BEROTE KALAN**	B/KALAN	Berote Kalan, Kahoo Sharqi
		B/KHURD	Berote Khurd, Kahoo Gharbi
8	**PALAK**	PALAK	Palak, Arwar, Darwaza, Soorjal
		RIALA	Riala, Kala Ban, Longal, Malkot
9	**NAGRIL BALA**	N/BALA	Nagri bala, Akhroota, Makool bala, Tatreela
10	**NATHIA GALI**	MALACH	Malach, Keri Sarfali, Pasala
		BAGAN	Jhansa, Lassan
11	**NAMLI MAIRA**	NAMLI MAIRA	Dhaki Khaiter, Namli Maira, Noormang, Panghora
12	**BAGNOTAR**	BAGNOTAR	Bagnotar, Bandi Maira, Chhaan
13	**BEERANGALI**	B/GALI	Beerangali, Adndarseri, Jhafar
14	**SARBANA**	SARBANA	Sarbana, Desal, Khun, Seergah, Sadra, Mohar Khurd, Aziz Bang, Sangli, Sawal
15	**PHALKOT**	PHALKOT	Phalkot, Malsa
16	**BAGH**	BAGH	Bagh, Jaggian, Kohalian, Kehial
17	**KUTHWAL**	CHATRI	Chatri, Bandi Mansoor, Gali Banian, Kuthwal, Maira Rehmat Khan, Mohar Kalan
18	**BANDA PIR KHAN**	BANDI DHUNDAN	Bandi Dhundan, Banda Pir Khan
		TARNAWAI	Tarnawai
19	**BALDHERI**	BALDHERI	Baldheri, Gojri, Hal Maira Tarla, Hal Maira Utla, Jalalpura, More More Kalan, Sajikot, Tannan
20	**MIRPUR(50%R)**	MIRPUR	Mirpur
21	**KAKUL**	KAKUL	Kakul , Balolia, Mandroch Kalan, Mandroch Khurd
		N/SHEHR SHAMALI	Nawanshehr Shamali
		N/SHEHR JANOOBI	Nawanshehr Janoobi
22	**DHAMTOUR**	DHAMTOUR	Dhamtour, Banda Shohalian, Guldhok
		NAGAKI	Nagaki, Banda Bazdar, Jaswal, Ukhreela
23	**SHEIKHULBANDI(50%R)**	S/BANDI	Sheikhulbandi, Qasba A/Abad, Rakh Civil /Military
24	**SALHAD(50%R)**	SALHAD	Salhad, Khokar

25	**JHANGI(75%R)**	JHANGI	Jhangi, Banda Amlok, Banda Batang, Banda Faizullah, Banda Gasan , Banda Khair Ali Khan, Banda Lamba Banda Noor Ahmad, Banda Phagwarian, Banda Qazi, Banda Sher Khan, Dheri, Dobather
26	**PAWA**	KAKOT	Kakot, Bandi Matrach, Bazurgal, Chatrhi, Gogarhi, Pando Thana, Garamri, Pasial, Patheri Syedan, Peshail, Sargal, Sherbai, Sial, Talehar, Thathi
		PAWA	Pawa, Banda Jagian, Kamhar, Bandi Kishna, Laley-De-Bandi, Mochi Kot, Paswal Mian, Richbhen, Sohlan Bala, Sohlan Tarli
27	**CHAMHAD**	CHAMHAD	Chmhad, Bagh Darah, Beram Gali, Bisala, Chamak Maira, Fateh Bandi, Khani Thathiara, Sarbangala, Shadial
		KASAKI KALAN	Kasaki Kalan, Kasaki Khurd, Baghati, Bain Gojri, Bain Noora, Banseri, Bhoraj, Botiala, Daroparh, Jattal, Mehal, Thana
28	**PIND KARGU KHAN**	P-KARGU KHAN	Ping Kargu Khan, Barkot, Haal, Khalora Tarla, Khalora Utla
		LAKHALA	Lakhala, Gandah, Kangrora, Khanda Khoo, Pind
		SERI SHER SHAH	Seri Sher Shah, Bandi Nikra, Bareela, Bacha Kalan, Bacha Khurd, Chahar, Chatha, Tandhara, Kanger Bala, Pohar, Rata
29	**KUTHIALA**	KUTHIALA	Kuthiala, Gheley, Gup, Joghan Mar, Mukhdabi, Nallah, Paswal, Salyut, Sobra, Thali, Todoo
30	**JARRAL**	JARRAL	Jarral, Bacha Sani, Bhajwal, Gul Bandi, Jabbi, Khutiala, Kotnali, Nakhey
31	**SHERWAN**	SHERWAN	Sherwan Kalan, Sherwan Khurd, Bamochi, Bhateel Kalar, Khaitar, Kumhar(Amir Abad), Shaheedabad, Thorey
		CHAMHATI	Chamhati, Beri, Chakar, Bain, Chorgran, Juna, Kamila, Kangar Pin, Khalabat, Kharperh, Thati Ahmad Khan
32	**MALIKPURA (URBAN)**	CIRCLE-I	B-1 Shimla Hill, B-2 Chari & Chandni Chowk B-3 Moh: Sher Mohammad B-4 Moh: Chita pul, B-5 Moh: Jail
		CIRCLE-II	B-1 Moh: Dhakki, B-2 Moh: Nazami Darul Khair, B-3 Moh: Maira Darul Khair B-4 Chitta Pul, Madni Mohallah B-5 Chitta Pul New Tehsil, Circular Road Kanshirpura
33	**CENTRAL ABBOTTABAD**	CIRCLE-II	B-6 Bus Stand, Moh: Sapan, Sabzi Mandi
		CIRCLE-III	B-1 Moh: Forest, Moh: Sikandar, Ahata Kotchary, Moh: Rais Khan, B-2 Moh: Noor-Ud-Din, Ahata Mian, Diggi Mohallah B-3 Moh: Thakar, Gardwara, Jalian Moh: , Wakeel Moh: , Sirsyed, Moh: Saiban B-4 Kadim Board Office, Aram Bagh
		CIRCLE-IV	B-1 Kunj Jadeed B-2 Kunj Qadeem B-3 Dak Buglow, Kunj Ground, Qabli Mosque, Comp: School B-7 Chari Moh: New Abadi, Kund Jadeed
34	**KEHAL (URBAN)**	CIRCLE-IV	B-4 Moh: Mag: , Moh: Asif Shah, Abu-Zar Street B-5 Saddiqua Mohallah B-6 Moh: Farooq Azam, Moh: Usmanian

		CIRCLE-V	B-1 Karbala, Lower Kehal B-2 Upper Kehal B-3 Khola Kehal, Moh: Kassi, Moh: Piran B-4 Khola Kehal, Moh: Sardar Sadiq, B-5 R.O.Office, Makki Mohallah B-6 Moh: Uchari, Arambagh
35	**NAWANSHEHR (URBAN)**	CIRCLE 1 to 3	Moh: Muhammad Zai, Moh: Nia, Ilyasi, Moh: Sohaib Zai, Moh: Imran Zai, Joggan, Moh: Mosa Zai, Kund, Moh: Khalil Zai, Dhodial
	TEHSIL HAVELIAN		
		GHARI PHULGRAN	Ghari Phulgran, Harnara, Ghora Bazgran, Mannan, Kiala
1	**GHARI PHULGRAN**	RAJOYA	Rajoya, Thith Ochar
2	**BANDI ATTAI KHAN**	BANDI ATTAI KHAN	Bandi Attai Khan, Barseen, Batolni, Kotla, Manhat, Phullan Wali, Pipal, Salwala, Sureela
		JHANGRA	Jhangra, Chamba, Kalu Maira, Nowshera
3	**JHANGRA (25%U)**	HAVELIAN	Havelian (Rural), Darooni Maira, Mala, Sultanpur, Wazeera
		MAJOHAN	Majohan, Garba, Masah Gojri, Masah Syedan, Mera Tarla
4	**MAJOHAN**	RIALA	Chamnaka, Chandu Maira, Dhanak, Hajia, Karach, Mohari Sanwala, Tarmuchian
		LANGRIAL	Langrial, Dabran, Karhaki, Gali Batgran
5	**LANGRIAL**	DANNA NOORAL	Danna Nooral, Baseera, Cholata, Faqir Muhammad, Lassan, Manjia
		NARA	Nara, Gohra, Maira Utla, Mohri-Bad-Bhen
6	**NARA**	SATORA	Satora, Dakhan, Ghangah, Kanger Hoter, Kehan Mari
7	**DEWAL MANAL**	SAJIKOT	Sajikot, Ghehr, Dewal Manal, Makool Tarli, Nagri Tarli
		GOREENI	Goreeni, Kotal, Palasi
8	**GOREENI**	DANNAH	Danah, Bagla, Bajarian, Banwari, Suma Garhaga
		GHAMBEER	Phallah, Ghambeer, Ateran, Dheri Rakhala, Gali Kashmir, Ropar
9	**PHALLAH**	RAHI	Rahi, Battal Kund, Bhajoora, Charbat, Dhakhan, Paisar, Maira, Sher Pur
10	**LORA**	LORA	Lora, Dheri Kiala, Ghari Ghora, Narhoter, Noorpur, Seri Thath Karam Shah
11	**LANGRA**	LANGRA	Langra, Banda Sahib Khan, Lari
12	**HAVELIAN (URBAN)**	HAVEILAN (URBAN)	Moh: Loharan, Moh: Bega, Street Rozi Shah, National Bank, Lunda Bazar, Post Office Road, Moh: Upper Bega, Forest Check Post, Moh: Kashmarian, Street Dr. Farid, Street Naseem Sarhadi, Moh: Tanki, Moh: Tall, Moh: Tamber Market, Moh: Qabli, Moh: Mehboob Abad, Moh: Al-e-Hadees, Moh: Behram Khan, Kathra, Mian Feroz Shah, Moh: Markazi Jamia Masjid, Street Ajab Khan Zaib, St: Iqbal Market, Moh: Toti Khan, Moh: Roshan Din, Moh: Qasab, Moh: Zaman Shah, Gali Chan Pir, Gali Muhammad Din, Moh: Azam Khan, Abadi Tel: Exchange etc
		KOKAL	Kokal, Gajjal, Jandaka
13	**SEER GHARBI**	SEER GHARBI	Seer Gharbi, Bashbher, Malmola
14	**TAJWAL**	TAJWAL	Tajwal, Nowshera, Pirkot, Topla
15	**NAGRI TOTIAL**	NAGRI TOTIAL	Nagri Totial
16	**SEER SHARQI BHATTIAN**	SEER SHARQI	Seer Sharqi, Bhattian, Taror

UNION COUNCILS OF DISTRICT MANSHERA

S.No	U/C	Patwar Circlel	VILLAGE
TEHSIL MANSHERA			
1	Bher kund	Bher kunnd	Bherkund Utla,Harri Maira, Kehnian , Mari Safdar Shah , Neelor ,
		Khaki	Khaki
2	Lassan Takhral	Lasan Thakaral	Lassan Thakaral, Narwan ,Gehal ,Kaik , Nanoha,Mor Baffa Kalan,Manglore,Paish Gah
		Khawari	Khawari, Jinkiari,Barat , Thali ,Mohaian, Kareer
3	Dhodial	Argoshal	Dhodial Arghoshal
		Malkal	Dhodial Malkal , Shanai Bala , Gerwal
4	Behali	Potha	Potha ,Ogra ,Pakhwal
		Behali	Behali , Garala , Husenia, Rehar ,Rattian , Matyial
5	Hamsherian	Hamsherian	Hamsherian , Timber Khola , Mari Muqarab Shah ,Mari Shah Wali, Maswal , Mera Gia , Pano Dheri, Bherkund Tarla
6	Labar Kot	Labar Kot	Labar Kot , Kotkey
7	Pairan	Pairan	Paran ,Narbeer , Banda Sydian, Jabri , Shah Khail Ghari , Cherh, Mera Amjad Ali
8	Shinkiari	Shinkiari	Shinkiari ,Ukhrila , Badadi
9	Tarangri Sabar Shah	Tarangri Sabar Shah	Trangri Sabar Shah , Guli Bagh
		Nokot	Nokot , Terha Bala , Terha Payeen
10	Baffa	Baffa	Baffa , Bajore Khan Khaili , Baffa Lughmani , Baffa Dhodiari , Titwal , Lehari , Baffa Town
11	Sandesar	Sandesar	Sandesar , Chita Bata, Reerh
		Mongan	Mongan ,Hathi Mera , Machi Pool
12	Attar Sesha	Attar Sesha	Atter Shesha , Mundhiar , Phagla , Kahoter , Jaba , Arab khan
13	Malik Pur	Malik Pur	Malik Pur , Shanai Tarli , Khwajgan , Sikandara , Sher pur , Bana Shaikhan ,Murad Pur
14	Shokat Abad	Afzal Abad	Afzal Abad ,Susal
15	Inayat Abad	Inayat Abad	Inayat Abad , Banda Peeran , Chiti Gati , Ghandian , Lang , Hafeez Bhandi(Utli , Tarli)
16	Sum Ellahi Mung	Darhial	Darhail , Timbri , Sum Elahi Mung
17	Tanda	Tanda	Tanda , Bajna
18	Parhana	Parhana	Perhana , Jhangi , Gujran , Thakar Mera
		Kala Mera	Kala Mera , Thathi Kalan, Bandi Kenth
19	Lasan Nawab	Lasan Nawab	Lasan Nawab ,Dheri, Shah Koki,Bai Bohal ,Lyas
		Palsalah	Palsalah , Dhanata, Karkala
		Sheki	Sheki , Chandoor , Budhan , Khamian
20	Sawan Mera	Mangal Doga	Mangal Doga , Khel , Shah Kot , Trappi , Khaiyala , Lower Garan ,Bareela , Suneyara, Masand ,Mahal, Kund ,Sawan Mera
		Mohar Kalan	Mohar Kalan , Degree , Shaikh Wal , Saila , Sinjli , Dher , Mohar Khurd , Jattan
21	Phulra	Phulra	Phulra , Karka , Kutera , Jogra , Mond Garan , Taleyala , Bandi Ghulam haider , Sarni , Garwal
		Matseri	Matseri , Bandi khan khail , Ahal Sehri , Karan ,Sum , Timber , Mani wal , Patian , Darwaza

		Tarrari	Tarrari , Dum Nala Paen , Dum Nala Bala , Kemal , Deverian , Shalayan , Batangi , Gujra Di Gali ,Bandi dost Muhammad , Kawai , Darmang , Kamar Mari , Tengeer , Ghazi kot
22	Mansehra City # 1	Mansehra	Mansehra
23	Mansehra City# 2	Mansehra	Mansehra
24	Mansehra City # 3	Mansehra	Mansehra
25	Mansehra City # 4	Mansehra	Mansehra
26	Mansehra Rural	Mansehra	Ganda , Safaida , Hado Bandi
27	Datta	Datta	Datta, Ghazi kot , Haryala , Khushala , Chakiah
28	Jallu	Jallo	Jallo, Bhoraj , Blhag Bala, Blhag Pain , Mor Baffa Khurd , Shahilia
		Dabgran	Dabgran
29	Bhogar Mang	Bhogar Mang	Bhorgar mang Bheri Baikh, Andrasi, Gran Thali, Rathi, Baki, Kamal Doga, Chitta bata
30	Jabori	Jabori	Jabori, Banda Gesach, Kanog, Chela bagh, Boz baila,
31	Sachan	Sachan	Sachan, Kalas Rachari, Banda, Sacha Khurd, Seri kumashian, Giar sacha,
32	Jaber Devli	Jaber	Jabar,
		Panjool	Jacha, Panjool
33	Hillkot	Hillkot	Hilkot, Chapri, Bagro, Dheri Haleem, Neel band, Bali mang, Ashwal, Dehri numberdaran, Phulai, Malokra, Kund utla, Baleeja,
34	Chatter Plain	Lachimang	Lachimang, Dheri Saidullah, Sharkoolai, Ban Sacha, Kandal, Malkal, Gali gadda, Shakora , Khan
35	Battal	Battal	Battal, Khakhoo, Harori, Nasar di, Chalndri Soldhar, Karmang Pain, Karmang bala, Jalgali,
36	Ichrian	Ahl	Ahl, Bai tarli, Chinar kot, Salona, Herr
		Icharian	Ichrian, Kotli bala, Kund tarla, Kotli tarli, Tar khanal
TEHSIL BALAKOT			
1	Kaghan	Kaghan	Kaghan,
		Phagal	Phagal, Kalas, Jia mari, Karnal Bar, Pattan Dais,
2	Mohandri	Manoor	Manoor Arsala, Manoor bostan, Manoor Muhammad, Manoor Hafiz
		Jarad	Jared,
3	Kowai	Kowai	Kowai, Paras , Bhonja
4	Ghanool	Ghanool	Ghanool,
		Sangar	Sangar, Hassam abad, Bhangian, Josacha,
5	Hangrai	Hangrai	Hangrai, Galeela, Ban Bigar,
		Baila Sacha	Baila Sacha, Bageel, Sohan, Shahkria, Choshal
6	Sat Bani	Sat Bani	Satbani, Kaith Sirash, Jigari, Bandbara Patlang
7	Balakot	Balakot	Balakot, Mittikot, Tarrana, Shohal Najaf
8	Garlat	Garlat	Garlat, Nokot, Batkerrerr, Hassa, Kanshian
9	Shohal Mazullah	Shohal Mazullah	Shohal Moizullah, Jabri Kalseri,Lasoo sultani, Kanwara, Lasoo Zamindari, Patseri, Bajmori, Kummi, Khangeri
10	Talhatta	Talhatta	Talhatta, Lunda, Jabbi, Gulmaira, Sughdar, Batora, Hassara, Khashtera, Kot Bala, Pateeka
11	Ghari Habibullah	Ghari Habib ullah	Ghari, Barar kot
12	Karnol	karnol	Doga, Bisian, Jageer balola, Khair abad , Bhoraj, Sial , Karnol
TEHSIL OGHI			

1	Bandi Shungli	Bandi Shungli	Bandi, Chatta, Patian, Bheer batt
		Phagora	Phagora, Jhagi, Neel batt, Shunglli
2	Balian	Balian	Bailian, Kolaka, tarawara
3	Darband	Darband	Darband, Maira, Dokanni, Fareed abad, Der batt
		Chohian	Chohian, Bagwai, Dolarian, Ghumian Seri,
4	Dara Shanaya	Sokal	Sokal , Shahkot, Shakli Pansal, Karram, Shera, Bara , Bai barial
		Shanaya	Shanaya, Dokor, Dewal, Khand gran, Dara
5	Dilbori	Dilbori	Dilbori, Bagrian, Jisskot, Ghanian
6	Karorri	Karrori	Karrori, Doga, Hariala , Chamyal,
		Namal	Namal, Nainbal, fatehbandi, Badral, Darda Kholian, Naryala
		Jhodhan	Jhodha, Akho bandi, Namshera, Malhar
7	Kathai	khatai	Khatai, Chalandiran, Kabal
8	Nika Pani	Nika Pani	Nika pani, Angar Behn, Ghazi kot, chameri, chamb baila
		Kajla	Kajla, Jindri, Braderr
9	Oghi	Oghi	Oghi, Arbora, Dharra,
10	Shamdara	Shamdara	Shamdara,
11	Sher garh	Sher Garh	Gali badral, Bithu bandi, Seri gorian, Shergarh , Bajna,
		ChanSair	Chan sair, Gujar bandi, ismail bandi , Reham kot
TEHSIL KALADHAKA			
	Tribe		
1	**Basi Khail**		
2	**Mada Khail**		
3	**Hassan Zai**		
4	**Nasrat Khail**		
5	**Aka Zai**		

UNION COUNCILS OF DISTRICT BATTAGRAM

S.No	Union Council	Revenue Villages	Name of Muza,
1	Ajmera	Ajmera	Ajmera
			Noshera
			Matta
			Maidan
		Chapargram	Chapargram
			Tamai
2	Battagram	Battagram	Battagram
			Arghashori
3	Batamori	Batamori	Batamori
			Shamali
			Batamori
			Jonobi
			Kakarshang
			kadlay
		Jesol Bazar	Jesol
			Habib Banda
			Chita Banda
			Rajmera
4	Shamlai	Shamlai	Shamlai
			Bansair
			Kahiat
			Shah Khel
		Hill	Hill
			Malkal Gali
5	Rajdahri	Phagora	Phagora
		Neelishang	Neelishang
			Sharqi
			Neelishang
			Gharbi
			Rajdhari
			Shamlai
			Rajdhari
			Jonobi
6	Banian	Banian	Banian
			Dagai
			Dedal
		Bandigo	Bandigo
			Chohan
			Dahrian
7	Kuza Banda	Kuza Banda	Kuza Banda
			Bilandkot
			Saidra
		Tickri	Tickri
			Maira
			Sofian
8	Trand	Trand	Trand
			Gidri

			Gidri
		Gijbori	Pirhari
9	Gijbor		Gijbori
			Shingli Bala
			Chilar Sokar
10	Peshora	Peshora	Peshora
			Kotgalla
			Aughaz Banda
			Shingli Payeen
11	Thakot	Hutal Deshan	Hutal
			Batlay
			Chanjat
			Qinjbori
		Thakot	Thakot
			Barsar
			Bishkot
12	Paimal Sharif	Paimal Sharif	Paimal Sharif
			Dabri
			Shamarad
			Rangeen Abad

S.No	Union Council	Revenue Villages	Name of Muza
13	Hutal Batkul	Batkul	Hutal Batkul
			Qala
			Kanai
		Bab	Bab
			Aban
			Surgai
14	Jambera	Jambera	Jambera
			Shaltai
			Kund
		Cheeran	Cheeran
			Saj Biar
15	Banna	Banna	Banna
			Tailoos
			Kass
		Koshgram	Koshgram
			Bari
			Asharban
16	Biari	Biari	Biari
			Pokal
		Karg	Karg
			Rabat
			Bandi
17	Rashang	Rashang	Rashang
		Gangwal	Gangwal
		Gantar	Gantar
			Nehr
18	Bateela	Bateela	Bateela
			Bojri
		Nogram	Nogram
			Bandi Ropkani
19	Pashto	Pashto	Pashto
			Mir Ali Qala
			Batangi
		Null	Null
			Jangri
			Pakka Baig
20	Sakargah Bala	Sakargah Bala	Sakargah Bala
			Sakargah Payeen
			Jabri
			Dirkad
			Pazang
		Tandol	Tandol Bala
			Tandol Payeen
			Laghrai

APPENDEX-V

UNION COUNCILS OF DISTRICT KOHISTAN

S. NO	Name of Union Council	Name of villages
1	Batera	1. Batera pain 2. Zeer 3.Mansoor 4.Bar Masham 5.Mamin 6.Bar Sair 7. Dosham Sair 8.Kuz Masham 9. Kuz seer10.Kaprey 11.Kori 12.Darat 13.Kareen 14.Khatra 15.Kamat 16.Kharsha 17.Kabbri 18.Barchu19.Kora 20.Jmra 21.Cham 22.Haji Abad 23.Dongla 24.Maidan 25.Mandan 26.Mula Pattey 27. saidan 28.batera Bala 29. Bandi 30.Kunsher 31. Lorin 32. Bar lorin 33.Hilala 34.Karr 35.zari batal 36. Thapar.37. Akhori 38.Baz batil 39. Dil Kando Sharif abad 40. Kufri 41. Murad 42. Onara 43. Sinia 44. Par 45.Coochban 46. Kontar baz 47. Moyun 48. Sajri 49.Bala 50.Banda Jalu 51.Band Kalan 52.Dandan53.Gadai Baia 54. Geedar 55. Marrnay 56. Hirani 57. Haloon 58. Jalo 59.Jishaar 60.Kachar 61.Lotu 62. Mori
2	Mada Khel	1. Mada Khel Abad 2. Abda 3. Bari Kot 4. Lofri 5. Aghaz 6. Takki 7. safia Bar 8. Sofia Kuz 9.Dil Asad 10. Gujar Khel 11. Kot 12.Kulia 13. Tangi 14.Towa 15. Akhori 16.Dhari 17. Dheri 18.Hawari 19.Bandi 20. Khato 21. Chor 22. Kandow 23.Nairri 24. Nola 25. Jabba 26. Baros 27. Bilgay 28. Garang 29. Hgarban 30.Juz 31.Kasri 32. Landai sar 33. Nakka 33. Nakka Azas khel 34.Dhar 35. bari 36.Gano 37. Hara Baroos, 38. Jabri 39 Jangal Banda 40.Jashor 41. Petao 42. Saidque Banda 43. Daeir 44. Gaida Bala 45. Gaidar Namdr Khail 46. Balhija 47. Chapro 48. Chara 49. Chora 50. Danra 51. Donga 52. Kachar 53. Paizo Sar 54. Sonchal 55. Joni Bela 56. Khasri 57. Bar Darat 58. Kait 59. Khana 60. Kuz Darat Meral 61. Yardad 62. Charpo 63. Koi 64. Band Kot 65. Banda Kot 66. Dewar 67. Bin Sarin 68. Mareen 69. Bar Jamra 70. Mir Bat 71. Gali 72. Shamal Gul 73. Kanjat 74. Shah Murad 75. Khowar 76. Doga 77. Anla 78. Jabba 79. Shadi Kot 80. Banda Jasher 81. Galgo.
3	Kolai	1. Kolai 2. Bar Killi 3. Haji Abad 4. Batangi 5. Koz Kolai 6. Koz Sari 7. Koz Gabeerr 8. Koseen 9. Gakoi 10. Sago 11. Kandal 12. Qallan 13. Maidan 14. Noor Koi 15. Banodar 16. Gat 17. Kafar Banda18. Kamar Banda 19. Rajam Kot 20. Degari Bar 21. Kunshair 22. Jelo Bar 23. Shamial 24. Bib Banda 25. Bar Kandao 26. Koz Kandao 27. Pegal Koz 28. Pegal Koz 29. Las Dara 30. Dak 31. Tograt 32. Moos 33. Ahuz 34. Bar Sair 35. Bela 36. Khakaro 37. Bar Khakaro 38. Chor Banda.
4	Shalkan Abad	1. Shalkan Abad 2. Baugh 3. Bar Karr 4. Gathar 5. Kharat 6. Sigal Karr 7. Taboj 8. Shalkan Abad No.2 9. Bar Sair 10. Bar Seer 11. Bass 12. Bakri 13. Bela 14. Jat 15. Karan 16. Muslim Abad 17. Ghazi Abad 18. Paroos 19. Joi Sair 20. Qallah 21. Rato 22. Shain 23. Shail 24. Bar Gabeer.
5	Kunshair	1. Kunshair 2. Sarkar 3. Lot Moseen 4. Mojal 5. Soranil 6. Shabay 7. Banalo 8. Dalgay 9. Ahavey 10. Gor 11. Jojar Banda 12. Kapar Banda 13. Karr Baik 14. Kareen 15. Kuz Tagai 16. Nai Banda 17. Dolai 18. Seri 19. Kot Village 20. Gambeer 21. Kunshair 22. Nargis Abad 23. Pari Parai 24. Sholbah 25. Shoo Baik 26. Shotal 27. Soreen Baik 28. Kuz Sair.
6	Sharakot	1. Sharakot Tandri (Dani) 2. Bat 3. Gato 4. Jamgali 5. Bandari (Basni) 6. Donat 7. Ahogat.
7	Haran	1. Haran 2. Badakot 3. Yanjool 4. Battal 5. Barabarr 6. Yun 7. Palosar 8. Naro 9. Koya Sar 10. Guli Bagh 11. Gaidar 12. Kandro 13. Ishaq 14. Key 15. Kuz Moseen 16. Bar Moseen.
8	Bar Sharyal	1. Bar Sharyal 2. Andral Banda 3. Bin Banda 4. Bar Gaidar 5. Bar Nairri 6. Dadair 7. Dheri 8. Gaidar 9. Gakoi 10. Kachar Banda 11. Kat Banda 12. Khana Banda 13. Bakri Banda 14. Maidan 15. Murid Baik 16. Sheri Banda 17. Shoom Jamat 18. Ganja Banda.
9	Kuz Sharyal	1. Kuz Sharyal 2. Bakro 3. Bar Khnowargay 4. Barani Banda 5. Gakoi 6. Gaso Huk 7. Jal Baik 8. Jamia Baik 9. Jahangiro Banda 10. Koi 11. Koghana (Ghano) 12. Kot Banda 13. Kuz Khnowargay 14. Tor Banda 15. Moman
10	Kuz Paro	1. Kuz Paro 2. Sair 3. Fajoni 4. Khel Nazro 5. Landi 6. Banda Bar 7. Kuz 8. Bali 9.Bada Seer 10. Akhonzad gan 11. Sigal Belo 12. Bar Banda 13. Bela Banda 14. Kuz Banda 15. Gohar Abad 16. Bandi 17. Bela. 18.Doak 19. Shahi Bagh 20. Balgai 21. Bush 22. Massi 23. Seer 24. Toor waloo 25. Kalan 26. Jijal 27. Masi Kot 28. Kayi Balagy 29. Banil Uchar seer 30. Jamia 31. Khalyar Kot 32. Khal 33.

		Barri 34. Joi Kuz 35. Joibar 36. Bar jall 37 Kuz Jall 38. Chari 39. Aziz abad 40. Dhari 41. Dam Singh 42. Darikoto 43.Baik 44. Kotar Khail 45. Gaidan 46. Goibail 47. Jamal Khano Baik 48. Malgari 49. Najam 50. Parni Bar 51. Shamat Gedar 52. Sot Khail Bar 53. Paro. 54. Khalyar Jamra 55. Baneel.
11	Kota Kot	1. Baro Bela 2. Kuz Bela 3. Majoo Bela 4. takri 5. Kareen 6. Kota Kot 7. Zaro Kuz 8. Char Kuz 9. Banjoo.10. Char Bar 11. Gatobo 12. Jasheel 13. Dakrai 14. Chawar Kot 15.Bandoo 16. Azmosa 17. Bardero 18. Kuz dero 19. Karo Seer 20. Chamar Kot 21. Ganga 22. Ouchoi 23. Joiser 24 Chot 25. Kana 26. Gali Gadeer 27. gatabair 28. Kachoor 29 Kai 30. Sus baik 31 toka Banda 32 Duram Bala.
12	Shared	1.Shared 2. Loni ser 3. Basi 4. Seroo 5. Malgai 6. Qala deen Dagoon 7.Tarno Baik 8. Umal Khail 9. Bar Baik 10. Akhori Ser 11. Sasnat 12 Kuz Seer 13. Mughalrat 14. Shuki Seer 15. Madan 16. Khail 17. Gheen Baik 18. Narang Bela 19 Daroo 20. Eil Baik 21. Hoobaik 22. Sermorat 23. Shah 24.Baik. 25. Tapoon 26. Tako Sair 27.Bar Sair 28. Pir Dostan 29. Darto. 30. Bajal 31. Gotam 32. Dheri 33. Jail Baik 34. Manwar Sair. 35. Nakka 36. Sham Bela 37. Shaheed Bela 38. Dewan Bela 39. Kundal 40 Dumzai 41.Faroorgah 42. Mararr 43. Bado goast 44. Akhro Bela 45. Dewan Bela 46. Kudal Damzai 47. Serto 48. Raja Sair 49. Kandro 50. Kandas 51. Denar 52. Sail 53. Danga 54. Balo Bela 55.Pakey 56. Bela 57. Khel Rafeullah 58. Khaba Kot.
13	Peach Bela	1. Peach Bela 2. Doke Bela 3. Kayal 4. Khel 5. Barri Ledi 6. Marat 7. Narri 8. Hkanabad 9. Kukam Koz 10. Hukam Bar 11. Chalo Bela 12. Tandi Baik 13. Lakhi Seri 14. Pul Bela 15. Kanari 16. Kot Bela 17. Kaimia Bela 18. Khowara Bela 19. Beto Kundala 20. Choki Kunara 21. Danat 22. Ishaq 23. Kamino Baik 24. Yari Baik 25. Thoki Baik 26. Zab 27. Paroki 28. Kalgay 29. Saween 30. Janas 31. Lakhi Dar 32. Sarkas 33.Dheri 34. Dka Khoo 35. Dandi 36. Baik 37. Urni 38. Shaheed Bela 39. Selo Belo 40. Karr Baik Bela 41. Choi Baik 42. Cheel Baik 43. Sargoon 44. Shoi Baik 45. Cheel Baik 46. Sargon 47. Athro Baik 48. Thoani 49. Tharota 50. Shaman 51. Akhro Bela 52. Qala 53. Neel Gah 54. Bad Gah 55. Akhon 56. Khawr 57. Banjroon 58. Bari Jakh 59. Kanna 60. Barri Dheri 61. Bar Now 62. Kuz Now 63. walio bela 64. Garoom 65. Cagah Bela 66. gaziangahoo 67. Dum Bela 68. goharan 69. Goi Baik 70. Kofen Bela 71. Nashkai 72. Assair 73. Wool Bela 74. Khari Dheri 75. Barri Khas 76. Baro Bar 77. Dum Pati 78. gahri 79. Gaider 80. Habib Khas 81. Nashri 82. Bari Dheri 83. Ghuzano Sar 84. Lekhi Jakh 85. Lekhi Nar 86. Mara
14	Bankad	1. Bankad 2. Khanai 3. Charto 4. Kuz Moreen 5. Bar Moreen 6. Sholgara 7. Zama Khel Bela 8. Chakai 9. Charloi 10. Kukandio 11. Kuzmansara 12. Barmisaira 13. Seri Barri 14. Palalo 15. Gull Gee 16. Kuz Sangri 17. Ughaz Sar 18. Gahari 19. Bar Sangri 20. Kaar 21. Kuz Dheri 22. Mans Khapa 23. Dano 24. Ouch Khowarr 25. Bela Rustam Khel 26. Charona 27. Chorlak 28. Dossa.
15	Ranolia	1. Zoren Kalley 2. Khani 3. Dhango 4. Gaider 5. Kokiyal 6. Thapan 7. Thapan Ali Dad Khail 8. Charr 9. Nairri 10. Bar Kallay 11. Ashal 12. Sangri 13. Manwan 14. Darto 15. Dhar Mirkan Khel 16. Moni Khel Bela 17. Dhain Sali Khel 18. Pirano Dar 19. Jai Khel 20. Chochange 21. Soya 22. Daro 23. Doga 24. Goshi 25. Bela Goshi 26. Doga Khel 27. Domi Khel 28. Jalkot 29. Alwal 30. Jhangrri 31. Dhand Domi 32. Dhand Moni 33. Moharia 34. Yakta 35. Tangu 36.Zerbela 37. Martong 38. Shabi Khel Dara 39. Bhoi 40. Nao 41. Charri 42. Mata Baik 43. Bela 44. Kareen 45. Kashmir 46. Chola Kareen 47. Geel 48. Kuz Kelley 49. Jareen 50. Takht 51. Dhar 52. Dabri.
16	Dubair Pain	1. Bela Dubair 2. Dehar 3. Segah 4. Dero 5. Qallah 6. Soah 7. Kanao 8. Seri 9. Khowarr 10. Sanagai 11. Gat 12. Karko 13. Faqir Patti 14. Banjarr 15. Jamara 16. Shungail 17. Tangai 18. Shungail Kas 19. Doman 20. Delo 21. Gbundo 22. Rawan Deer 23. Sali Khel 24. Nao 25. Kass
17	Dubair Khas	1. Dubair Village 2. Dogar Village 3. Shalkey 4. Rooi Dak 5. Noorj 6. Sach 7. Doop 8. Sairgah 9. Baneel 10. Geel 11. Jhag Village 12. Bar Paiza 13. Dandokey 14. Daro Mano 15. Patey 16. Daklai

		17. Saproona 18. Sharr 19. Baneel Qallah 20. Ambowa
18	Dubair Bela	1. Soya Khel Dar 2. Mula Khel Dar 3. Gutar Khel Dar 4. Saidan Bela 5. Seri Gultar Khel 6. Sheikh Dara 7. Chawa 8. Gaya 9. Mujgali 10. Lundhair 11. Osool 12. Ochar 13. Dilgat 14. Qallah No.1 15. Qallah No.2 16. Nairri 17. Belgay
19	Jijal	1. Bela Jajaal 2. Bela No.1 3. Bela No. 2 4. Buner Bela 5. Shahi 6. Dair 7.Ghawan Village 8. Seri 9. Dongo 10. Gabar 11. Dhup 12. Mali dara 13. Kotial 14.Delo 15. Sandari 16. Sughali Ghai 17.Khowr Bahadar Khel18. Khushi Khel Bela 19. Dar Chala Khel 20. Jehan Bela 21. Bazar Bela 22. Bela Ayam Khel 23. Serto 24. Bangr Bela 25. Kuza Banda 26. Tehsil Banda 27. Zore Kaley
20	Pattan	1. Pattan Seeri 2. Muslim Bagh 3. Toko dachi 4. Pattan village 5. Rango No.2 6. Mundhar 7. Aba Khel 8. Ban Khel 9. Juran Khel 10. Ghambeer 11. Kaseer 12. Kawai 13. Kawyoun 14. Batjohi 15. Khelto 16. Rango No.1 17.Seri 18.seerto 19. Zardad/Rasuldhar 20. Chorbanda
21	Sagayun	1. Sagayun 2. Noorjehan Abad 3.Layoun 4. Daro 5. Kashday 6. Kalgan 7. Raja Youn 8. Janchal 9. Shamsher 10. Qalagay 11.Karamaro 12. Galango 13. Mazo 14. Tangi 15. Baneel 16. Baneel Qalla 17. Chor Bairy 18. Boon 19. Shamal Boon 20. Munir 21. Kotya 22. Muniryoun 23. Manseera 24. Koz Dair 25. Bar Dair 26. Kacher Baik 27. Shamalgul 28. Bego Khel 29. Shamalgul Nelo Khel 30. Dop . Shamalgul 31. Chilari 32. Dand 33. Kamar Banda 34. Datra Dabeck 35. Luja Khel Dadra 36. Galio 37. Barang Banda 38. Ah Baik 39. Jamara 40. Kahata Shati
22	Chowa Dara	1. Chowa 2. Sangah 3. Ajdeer 4. Dar Kellay 5. Mekoi 6. Tango 7. Karbeach 8. Dang 9. Arfolia 10. Dara 11. Bair Dosa 12. Chobal 13. Kal Pattan 14. Bar Chowa 15. Jai 16. Talbat 17. Datool 18. Zarbat 19. Dakar 20. Barargo 21. Sholan 22. Ziarat 23. Gujar Banda 24. Kara Baik 25. Pat daro 26. Dartoaki 27. jaito 28. Narri 29. Keen 30. Semoo 31. Dab 32. Shan Dair 33. Bar Bergai 34. Bayoun 35. Galto 36. Mankahar No.1 37. Shakeel Kar 38. Kaslo 39. Yanjool 40. Sago Bairr 41. Domna 42. Dargai 43. Katlo 44. Mankahar No.2
23	Kayal	1. Shisal Kayal 2. Soyan Bair 3. Phagyal 4. Ghalai 5. Daro 6. Bachagia 7. Harigan 8. Banjehari 9. Doop 10. Sangi 11. Setro No.1 12. Setro No.2 13. Bairrlo 14. Kayoun Sear 15. Bairr 16. Kayal Village 17. Charto 18. Peshwa 19. Jehano Boon 20. Sawar Steel 21. Sun Steel 22. Banda 23. Maidan 24. Oso 25. Jaba 26. Balian Darat 27. Dabri 28. Bandlo 29. Kuz Mansera 30. Dasni Jalai 31. Allah 32. Ashian No. 1 33. Ashain No.2 34. Maswal 35. Sago 36. Kash Bair 37. Dargi No.1 38. Dargi No.2 39. Dabro 40. Owni 41.Dagri No.2 42.Sayal 43.Doband 44.Barri 45.Maidan 46.Singer 47.Sair 48.Ashian No.2 49.Delon bair 50.Kandro Bair 51. Dheri Leo
24	Bari Yar	1. Shah 2. Jarno 3. Baig 4.Dar 5. Kandow 6. Jakh 7. Back 8. Yang 9. Chando 10. Karo sair 11. Siglo 12. Serto 13. Nazir Bela 14. Bariyar 15. Bandlo 16. Bela Jalo Sair 17. Danki sair 18. Sheroga 19. Roi Baick 20. Taloon Wai 21. Daad Goon 22. Dokro 23. Achoi Back 24. haro back 25. Shatoo 26. Daro, Kanowey, Akro Back, Baick, Baja, Bar Kaparkot, Barkel Back, Bar Lohi, Push, Dadir Maidam, Doli, Aslan, Jamra, Kachcay, Shel Baick, Karr, Kundair, Kudly, Kuz Kapar Kot, Kuz Kandaro, Kuz Lohi, Multat, Mirwali, Dadair, Moss, Pir Bela, Sumra Dadir, Surto, Jook
25	Goshali	Goshali, Shegloband, Alwani, Ochi Bar, Ochi Kuz, Goor Bagh, Jabrai, Dadiar Bar, Dadiar Kuz, Jail, Serto, Buck, Maidan, Charo Much, Pashoot, Qaisar, Dadir, Harpo Dadir, Buck Too, Seri Kuz, Bar Bela, Bela Sachoi, Zar Bari, Kuz Kintal, Bar Kintal, Shatoi, Shahi Banda, Khel, Thoki, Dadair, Gujar Banda, Ajab Dadir, Khel dadir, Dogam Sachia, Gagoi, Gujari Back, Qareeb, Banjar, Shoki Seerm Rubgam, Kilto Back, Qadarm Bariga, Mandori, Serto, Fabar Seerm Unchro, Jahakhm Pashoot, Kareen, Dadair, Utlook.
26	Kuz Jalkot	1. Kuz Jalkot, Village, 2. Juri, 3. Jandar Bela, 4. Rajkot, 5. Kaloni, 6. Caro/Gawadar Khan, 7. Dadair, Kanrot, Donst, Bosses, Chaurto Bar, Chauto Kuz, Jallo. AJmira, Babbar, Kuz Bela, Pashot, Eil, Sosak, Sair,

27	Bar Jalkot	Ajalgat, Chelis khel Dadir, Sikandar Dadiar, Medain, Bush, Shillo, Kuz Gaheen, Saidan Dadiar, Bigai, Koop, Ashkal Dadiar, Jabri Juz, Jabri Bar, Hamdi Kuz, Hanmdi Bar, Gadiar, Sair Kot, Mansheani Juz, Manshwani, Aska Khel, Sali Khel Dadiar,
28	Dassu	Lootar, Doc Bah, Surkrat, Jeshal, Unchar, Jal Back, Jandar, Char, Dadiar, Kass, Rail, Zarif, Dajir, Kaiga, Bar Seenm Oanj Bahm Rhoki, Dassu, Danki, Teyal, Chuchong, Kuz Chunhang, Logra, Morga, Koshi, Shal/Kai
29	Sazeen	Sazeen Village, Goreen, Shang, Dogah, Sazeen Banda, Lachi Nala, Sumar Nala, Shuri Nala, Asrto, Sazeen Camp, Gambat, Balagul, Shatyal Bazar, Dass Baidal, Dabeaxh, Sarato.
30	Harban	Threeg, Bakki, Dargah, Gakooz, Harban Kot, Baboil, Liko, Barayar Bar, Baryar Kuz,Garoshang Basha, Misrag Bar, Misrag Kuz, Sarr Garhi, Shytyal
31	Komila	Komila, Kuz & Bar Kass, Kandai, Sohna, Zaidkar Barm Dadairm Serai, Pecho, Doong, Mashroot Jain, Zaid Kar Kuz, Kandao, Kar Zailly, Shanlegi, Daro, Bairr, Mailoon, Chichar Kuz, & Bar, Barri Kango, Segal Rango, Sach, Pishwai, Romal, Shamal, Bar Chichar
32	Seo	Seo Old Village, Seo Village, PUrwa, Janchal, Jagi Boon, Haro Boon, Gabar, Daloon, Sakhi Namdadair, Dahar, Dogah, Ashien Bairrm Seena Bairrm Bairr, Zarre Banda, Haica Kandao, Sukar Khel Kandao.
33	Sigloo	Sigloo,Taloi, Kayum, Mangoi, Shingle Bela, Kogai, Shinfli Pain, Anals, Chando, Musa, Dadair, Ashal, Shirr Kuz, Sharr Bar, Ayaumm Bairr Gabbar, Aroholai, Tatoli, Kae Oain, Kidair, Maidanm Chino, Dar, Dahar, Kai, Pasneri, Kar Bala, Kuz Bairm Axhoil, Bairr, Kumma.
34	Kuz Purwa	Kuz Purwa, Dahar Barri, Kai Bush Bairr, Kuz Sairm Parrai, Bar Parwa, Silwar, Jakail, Makan Dadiar, Gali, Numar, Rupari, Bairr, LIko, Sodal, Sodali, Bairr, Bar Serto, Kuz Serto, Bairrm Darli, Ouchi, Dara Band, Jali, Gilto Sair, Amzal, sair, Daiwar, Kodal, Barat, Zodal, Bairr/Kahdi, Kandah, Maiarr
35	Thoti	Bairr, Khoshi, Katgal. Nabel, Ushal, Saproona, Salach, Thoti Bar, Thoti Kuz, Dantarrm Shokharrm Bairr, Gantarr, Sero, Kafar Banda, Rango, Bela, Gogah, Maro, Bangi, Seri Daram Dombail, Aftab Thoti, Akhorri, Barrlo, Derto, Turkhan, Daro, Allil, Kot, Sagah, Seto, Kangal, Zango, Dheri, Bar Kot, Pooj.
36	Kareen	Dong, Janch, Serai, Sayal, Kachar,Pari,Khowr,Gaider ,Dooga,Jashoi,Mahbail,Domi seer,Churta,Dambail,Saiie Seeri,Kachar akori,Karango,Jamra,Darloo,Mustan,Asgal,seerto,seertoi,Seer Gari ,Thore, Bair,
37	Karang	Berti,Barigo No.1, Barigo No.2,Dhongwi,Ashroo,Bagroo dara,Bagroo No.2 Shangoi, Petwa,bagroo No.1 jog,Janch,Pao, Peri Bar,Pari Kuz,Kari,Kari Kuz, Peri,Suikhel,Para,Ashdaro,Bar Kar,Barto,Giader,Gojri Back,Gat,Kuc Kachar,Tarkan,Lahri,Razaka,Salto,Mashri,Karang No.1,Das,Kanda seraj,Seerto,Karang No.2,Lahri Bar,Lahri Kuz,Mashdar,Seerto No.1,Kew Kahrloo,seerto No.2 kahat,Zambeel,Tanch,
38	Gabral	Barigo,Rechaw,Toor,Segal,Mirshahi,Seerti,Mirshatoo,Sadara,Paroo,Ashpedar,bangi,Sandro bari,Dehri,Kabri,Kotala,Naroo,Sabar,Kari,Gabral Mulakhel,Gaider,Goshakhel,Somi,Shoudam,Dambela,Dambela No.1,Maidan Mula,Dumbail No.2 ,Kohibalo,Bagroo,Bagh seeri,swato,Gabral,Pattey,Shadamkhel GabralBand,Segal,Sari,Kai,Dehree,Doong,Kuz Doong ,Kras,Kras kuz,Nakho,Shangoi,Gano Belo,

5. UNION COUNCILS OF DISTRICT SHANGLA

S.No	Tehsil	Name of U/C	Name of Villages
1	ALPURAI	Pir Kana	1) Bilkani 2) Dehrai Larai 3) Ganshal 4) Ajmir
2		Damorai	1) Damorai 2) Karshat
3		Shahpur	1) Shahpur 2) Bar Kana
4		Kuz Kana	1) Kuz Kana 2) Serai Kana
5		Ranayal	1) Ranayal 2) Donrrai 3) Sangrrai
6		Dehrai Ghorbabd	1) Dehrai Ghorband 2) Dawlat Kalay 3) Zarra 4) Banrr
7		Malik Khil Kotkay	1) Malik Khil Kotkay 2) Bazar Kot 3) Amnay 4) Achar
8		Piraabad	1)Pagorai 2) Pir Abad 3) Petao
9		Alpurai	1) Alpuir 2) Basi 3) Wahab Khil Kotkay 4) Gandao 5) Managay
10		Lilowani	1) Lilowani 2) Banada Chena 3) Kass 4) Sheshand
11	BESHAM	Butyal	1) Butyal 2) Besham 3) Karay
12		Kormang	1) Kormang 2) Hawalai 3) Lahor
13		Shang	1) Shang
14		Maira	1) Mira 2) Bar batkot
15		Dandai	1) Takhta 2) Dandai/Sandakai
16	CHAKEISAR	Chakeisar	1) Khadang 2) Chakeisar
17		Opal	1) Opal 2) Ponyal 3) Gulibut 4) Korara 5) Danakool 6) Chedam
18		Bunerwal	1) Bunerwal 2) Katkor 3) Lambar 4) Dandai /Sandia
19		Sarkool	1) Sarkool 2) Daot 3) Gunagar 4) Jatkool 5) Kandai 6) Taloon
20	PURAN /MAKOZAI	Aloch	1) Aloch 2) Nem Kalay 3) Kolalai 4) Kotkay Puran 5) Dera Serai 6)Kadoona
21		Bar Puran	1) Sandovi 2) Sanila
22		Bengalai	1) Bengalai 2) Chagam
23		Chowga	1) Chowga 2) Baina
24		Ismail Khil	1) Kuz Paw 2) Garai 3) Mach kandai 4) Marikzay 5) Shenkoprai 6) Sangrai
25		Musa Khil	1) Shekolay 2) Pandorai 3) Ainor
26	MARTUNG	Martung Kas	1) Mandorai 2) Kuz Kalay 3) Manz Kalay 4) Mirjalay 5) Kabil Gram 6) Shaja 7) Kotkay Murtung 8) Dorasar 9) Ashora Sar 10) Gair
27		Behlool Khil	1)Alami Banda 2) Sari Martung 3) Towrani 4)Peshlor 5) Pish Kand 6)Dankool 7) Titwalan 8) Chorag Dandoka 9) Garka 10)Tharoray 11)Biyar/Behar
28		Kamach Nusrat Khil	1) Nask 2) Rich Band 3) Gado Garai 4) Musa Khilo Sar 5) Salay 6) Kamach 7)Didal 8)Hasham Khil Dab

6. UNION COUNCILS OF DISTRICT MUZAFFARABAD

S.No.	Union Council	Villages
1.	**Dudnail**	Malik Sary,Behla Mohd. Khan,Buntal, Dosut, Dudnial,Sheikh Behla, Subhai, Tehgihen, Kareemabad (Sotee), Tao Butt, Shondass, Sardari, Mernot, Janwai, Halmat, Dhachee, Nikkro, Kail Mehdan, Kalla Loot, Kail Domale, Surgun Baguwan, Surgun Boukwali, Kel Saari, Khare gam, Khawaja Sary, Sharda
2.	**Kundal Shahi**	Sairee Iagrain, Kanthail, Sung Gush. Kundal Shahi, Kaian Sherif, Gurieieall, Chunjath, Dular
3.	**Neelum**	Neelum,Lawat Khata Seari, Nagdar Kennry, Nagdar Cassabpura, Lowat Paian, Lowat Bala, Lowat Manian, Karka, Dekhin kot, Chinar Pura Nagdar, Changen, Bor, Kengoo, Ohur Sadian
4.	**Barian**	Jabbar Barrian, Choali, Rayyali, Mirpura, Terban, Saidpura, Flakan Jageer, Jergi, Katha Chugalli, Katha Kasian, Paylian, Pur Nahi
5.	**Ashkot**	Sandok Bandi, Ghil, Islam Pura,Jura, Lasswah Kathian, Palehri Bessian, Ashkot, Lasswah Khas
6.	**Bheri**	Gulli Khatier, Kulas, Gehatian,Doba, Baisri, Charil Dubrial, Gorakha Seri Bheri, Nallah
7.	**Shah Kot**	Rawatta, Lary Maigal ,Katha Parian, Danger Bunchutter, Bata Salkhala,Danadura
8.	**Panjgran (Muzaffarabad)**	Kunoor; Purlah,Takia Sheeron, Arliyan, Ratrra, Khawarmung, Dhanni Bumbeyan, Deviliyan, Butnara, Bandi, Shahdara,Kohla
9.	**Heer Kulti**	Mera Mangran, Tarkhan Bandi, Patikka Muslimabad, Pakdum, Narhoter, Khanian, Heer Kulti, Duherian, Butt Mang, Budiar, Bandi, Shoran, Ashrog, Pachpaey
10.	**Panjkot**	Narran, Panjkot, Pakhrat, Numbal, Nosada, Muhrry, Mirakasi, Larri Kulian, Garrang, Chir Bun, Ali Koh, Nowsary
11.	**Kahori**	Kahori, Sadiqa, Sacha, Parsuchah, Mandal, Kulsair, Balseri, Herhyala, Changel, Buttle, Bela Darkoti, Bashash, Kahundi Piran, Karhya Drarh
12.	**Kahori Balgran**	Balgran, Gratnarh, Kelgran,Manjhoter
13.	**Machiara**	Danna, Sernian, Panjnund, Muchiara, Moori, Koli, Dulyar, Chuthian, Chukrian, Chimian Khaiter, But Darra,Kabhaya
14.	**Muzaffarabad Charakpura**	Katheli, Mehalam, Nandal, Ranwar Sherif, Rugan, Thala, Jullo, Sabthan, Kapa Butt, Kakliot, Danna,Charakpura, Chandira, Bakka, Aroon Khaiarter, Acharial, Kamar Bandi.
15.	**Saidpur**	Sangrhi, Saidpur, Pehalian Butnaraha, Kondala, Larrah Gran Kotli, Dahtoora, Chakria, Bandi Khatana, Bagh, Hotarairi Paraq
16.	**Chatter Domel**	Subri, Kaloch, Tandali, Sundgran, Khun Bandway, Charya, Karoli, Majhoiee, Khagran
17.	**Sarli Sacha**	Palla, Surli Scha, Panjoor Galli, Mendgran, Jheng, Dumrooli, Damrooli, Rangoor
18.	**Talgran**	Sairi Lallo, Riali, Talgran, Sumbel Panna, Saryan, Sairi Kalrha, Said Batta, Bandi Miran, Rajkot, Jabyan, Jabrhi, Ghumet, Gahaina, Danool, Rajpian, Shornian
19.	**Gojra**	Darra, Shervan, Lamnian Pattian, Pattar Hund, Ramkot, Rateer, Sarar, Seri, Verl Nakka, Shavai, Kotli, Shoran, Thang, Serian, Dong, Alra, Balik Panha, Bandi Saman, Pajgran, Dhani Dhondan, Koat, Dumshi, Gotha, Hadora, Hassanabad, Hassan Gallian, Ibhial, Ithshal, Kernah
20.	**Muzaffarabad**	Khat, Rujknde, Monghamer Khan, Maine Bandi, Malde, Manik Pia, Marakilla, Kond, Nazpura, Neldea, Pagil Bandi, Ravine, Tamber, Tianda,Khalla, Rampura, Biea, Bagh Nasf Kerdla, Bandi Karim Haider Shah, Kerdla, Bandi Chela, Bandi, Fati Jing, Batge, Borda, Dana, Huttrede Pieen, Kallar, Bandi Feker Mohd, Jendgara Bala, Denb, Huttrede Bala, Hassan Saree, Gunchatir, Gendgra Pien
21.	**Langerpura**	Mir Bandi, Nagra, Sultanpur, Shala Bag, Sat Pyali, Re Canyati, Puprosa, Palhotar, Bandi Tagian, Gori, Muzaffarabad, Totha, Khun Bandi, Langerpura, Malri Bala, Malri Pian, Marra,Mir Bandi

22.	**Noora Seri**	Muslundi, Gohari, Harma, Kandar, Karka Chamhata, Malwat, Gohotour, Naka Shakar Pattian, Nokote, Noora Seri, Pathika, Podae Mar, Rattan Seri, Sand Bun, Takia Waris Ali Shah, Seri dara, Boor Muzaffar shah, Gali ,Khokharan, Kalis, Basant Kote, Bantangi, Bhatian, Boor Paien, Bootha,Chal Pani, Gajju Khokhran, Battlian, Gajju Saydan, Choon, Gajju Khawajian, Doba, Dhani Mai Sahiba, Dahman Jhole, Gajju Turkan
23.	**Danna**	Namhoter, Ochha, Pothian, Satnara, Karian, Danna, Dilli, Sehotar, Jhilari, Ducha, Dhavi, Dar Bang, Bugla Sukhan, Bugenan, Bugta, Harhiulla
24.	**Danna**	Raj Pothi, Sanwarian, Ballan, Taryla, Kot, Kacheeli, Batta de seri, Jandali, Potha Kachihali
25.	**Therian**	Hitehehalie, Therian, Rajkandi, Phageri, Perthma, Noor Gran, Naran, Hoterari, Dolerry, Darra, Churat, Chothla, Chanal, Bang, Cham Kotli Azem Khan, Chakotli Nawab Khan, Basira, Bannyian, Kaarian Bajla
26.	**Danna**	Khairabad, Nagni, Chattar Kalas, Utrasi, Shah Durra, Sayyian, Sawan, Namli, Batangi, Barsala, Dharika, Basnara, Dhanni Kohala, Dangali, Bhurora, Bharyan, Nimah, Dollai Gurthan
27.	**Garhi Dopatta**	Bandi Buqlian, Kundian Shakrian, Nenna, Nagni Kaser kot, Nagni Daharian, Jabbar Batting, Butt Sheiar, Bail, Dukhan Puddar, Kotli
28.	**Hattian Dopatta**	Hullina, Awan Patti, Tara Kals, Sani Kot, Phathalli, Noshara, Mara Dado, Kals, Herialla Zamindarian, Herialla Gujran, Dupatta, Bandian, Bandi Jamadarian, Bandi Kokial, Lawasi
29.	**Katker**	Prame kot/lower kot, Rahim kot, Prame kot, Nakar Fatote, Katker, Kass Qurrashian, Dadhot
30.	**Jhandgran**	Moosa, Narat, Paja Sherif, Mehra Khurd, Potha Salah Gali, Awairra Ummer khan, Kari, Awani Bahoon, Jhandgran, Bahanna, Timbi, Maria Jankai
31.	**Mera Kalan**	Mera Kallan, Mohra, Mushtemba, Samlatti, Kassian Hillal
32.	**Salmia**	Noon Bagla, Panopindi, Salmia, Karly, Badiala, Mundan, Katti, Mohtar, Kopra, Sarbala, Nargoli
33.	**Kaimanja**	Toal, Urnian and Suran, Phundgran, Phlot, Moian Syedian, Kaimanja, Hurriala, Dachor, Miran, Dachor, Faqeeran, Chota, Butkanala, Moian Khakina
34.	**Komi Kot**	Komi, Sungolor, Kot, Jawaa, Goorsi, Gail,Noor Pur Nakran
35.	**Hattian Chakhama**	Kahter Nar, Batangi, Gharthama, Koona, Tarran, Nardajian, Darah, Chamb, Bandi Bala Peran, Chakhama, Bandi Chakan, Dowarta,Chal Jabra
36.	**Hattian Bala**	Lasdar, Hale, Seri Chalan, Saran, Nain Sukh, Kaninan, Dhulchattian, Dhani Bakalan, Deharian, Bagsar, Amra Sawan, Kuchadolari, Nalah Chakle
37.	**Chinari**	Chanoian, Serkh Chinari, Serben , Mohra Sadiq, Khaigran, Darung, Chakoti, Banian, Bandi Syedian, Andra seri,Jaskool
38.	**Khilana**	Khalana, Shah Kanjah, Rajpoor, Sugnna, Toffarabad, Uppi, Oleran, Bandi Hajam, Khullana Kalan, Khalana Khord, Bandi Bala Ghee Kot, Falian, Dubing, Khulis, Kindry
39.	**Gujar Bandi**	Nalie, Pall, Talikot, Sudhani, Rewand, Kotla, Kathi, oterari,Gunde, Garan, Gujar Bandi, Safida Bala Sehtho,Mara Bakot
40.	**Lamnian**	Ghal Sachian, Reshian, Qaziabad, Parsa, Neel Pash, Lamnian, Bandi Sachian, Bandi Gorsian, Bandgran
41.	**Langla**	Sarie, Sohah, Sunderi Bandi, Shahrian, Langla, Kaker Warah, Chamba Kamar Bandi, Goharabad, Gosian Bagh, Takia Bandi, Nogran
42.	**Leepa**	Chanenian, Karar Kot, Khaywara Gheekot, Kulli Mandal, Leepa Manda Kulli, Saidpura
43.	**Sena Daman**	Daman, Som, Sokar, Saina, Saher Bagla, Paror Sydian, Nandar, Garang, Bandi Mohri, Duber Kailan, Bandi Ahmad Khan, Demian, Bani Hoteri, Bani Langrial, Banni Hafiz, Batt Banni, Chakly Sydian, Daber Kalan
44.	**Leepa Banamula**	Talwary, Sudpura Azad, Mohee, Chat Kery, Lubgran, Bannamula, Chak Maqam, Bijaldhar, Batlian, Antlian, Ghaipura, Ghasla

7. UNION COUNCILS OF DISTRICT BAG

S.No	Name of U.C	Papulation 1998	Papulation 2005
TEHSIL DHIRKOT			
01	Dhirkot	13111	15864
02	Chamiati	14612	17681
03	Surang	9951	12041
04	Salian	8422	18151
05	Makhiala	1237	20143
06	Malot	16647	20143
07	Chirala	8712	10542
08	Rangla	18565	22464
TEHSIL BAGH			
01	Bani Passari	15711	19010
02	Bir Pani	16712	20222
03	Bhont	13492	16325
04	Bahaian	15556	18822
05	Jaglari	10770	13032
	Nar Sher Ali Khan		
06	Sawang	13497	16331
07	Raveli	13027	15763
08	Thub	21216	25671
09	Top	14112	17076
10.	Bagh	8503	10289
11.	Dharey	19509	23606
12.	Bagh M.C	18928	22903
TEHSIL HAVELI			
01	Budhal	10653	12890
02	Sangal	16730	20243
03	Kalali	16534	20006
04	Degwar	9467	11455
05	Khurshidabad	14331	17341
06	Changal	14476	17516
07	Kalamuia	18419	22287
08	Bhodi	8811	9693
09	Kabuta T.C	3042	3681

APPENDEX-IX

UNION COUNCILS OF DISTRICT RAWALKOT

List of Earthquake Affected Union Councils in Poonch & Sudhnoti Districts		
DISTRICT POONCH		
S#	**Tehsil**	**Union Council**
01	Abbaspur	Khali Draman
02	Abbaspur	Chatra
03	Abbaspur	Chaffar
04	Abbaspur	Town Abbaspur
05	Hajira	Sehra
06	Hajira	Battal
07	Hajira	Sehar Kakuta
08	Hajira	Gambir
09	Hajira	Phagwatti
10	Hajira	Sarari
11	Hajira	Bhantini
12	Hajira	Jandali
13	Hajira	Town Hajira
14	Rawalakot	Dothan
15	Rawalakot	Pakher
16	Rawalakot	Ali Sojal
17	Rawalakot	Dhamni
18	Rawalakot	Banjosa
19	Rawalakot	Singola
20	Rawalakot	Rehara
21	Rawalakot	Hurna Maira
22	Rawalakot	Pachiot
23	Rawalakot	Banjoin
24	Rawalakot	Thorar
25	Rawalakot	Tain
26	Rawalakot	Town Rawalakot
Sudhnoti (Damage Union Council)		
S#	**Tehsil**	**Union Council**
01	Plandri	Gorah
02	Plandri	Mong
03	Plandri	Patan Shar Khan
04	Plandri	Trarkhel
05	Plandri	Naraian

ANNEXURE-1

Draft Terms of References
Limited Environmental Assessment and EMP
Earthquake Emergency Recovery Project

A. Background

On October 8, 2005 at 8:50 PST, a magnitude 7.6 earthquake occurred in Pakistan, Afghanistan and India. The earthquake epicenter was located 100 km north-northeast of Islamabad, along a fault associated with the Indian Subcontinent moving northward and colliding with the Eurasian Continent.

The earthquake was strongly felt over a vast area, but the most severely affected areas in Pakistan were the districts of Abbottabad, Mansehra Battagram, Shanghla, and Kohistan in NWFP, and the districts of Muzaffarabad, Neelum, Bagh and Rawlakot in AJK. The calamity resulted in over 73,000 deaths and about 128,300 injured. About 500,000 families were directly or indirectly affected. Almost 500,000 housing units were fully or partially destroyed. In addition, 800 health facilities and 7,669 schools were also destroyed. The initial damages were further compounded by aftershocks which continued till the end of March resulting in heavy landslides, damaging roads and further disturbing the already unsettled slopes.

To support the emergency recovery and reconstruction efforts, the World Bank (WB) has initiated the Emergency Recovery Credit (ERC) project.

B. The Project

The ERC project would provide support to the Government of Pakistan's program of earthquake-related reconstruction and rehabilitation. Specifically, the project objectives are to support the efforts of the Government of Pakistan to:

1. reduce the immediate suffering resulting from the effects of the earthquake and restore livelihood destroyed by the earthquake;
2. restore basic services to the affected population and rebuild public infrastructure; and
3. start the recovery and reconstruction process.

The ERC project consists of the following four components:

1. **Housing:** This component will support the Government's homeowner-driven housing reconstruction program.
2. **Livelihood Support:** This component involves providing cash grants to the affected households, in order to protect the most vulnerable households, while also rejuvenating economic activity by reviving small business and replacing asset lost in agriculture.
3. **Import Financing:** This component will meet the reconstruction-related demand for import of fuel, steel, cement and other related commodities and services.
4. **Capacity Building:** This component envisages augmenting the existing implementation capacity of the Government of Pakistan to meet the heightened demand of reconstruction and recovery efforts.

C. Environmental and Social Screening and Assessment Framework (ESSAF)

ESSAF, part of the project agreement with GoPakistan, provides general policies, guidelines, code of practice and procedures to be integrated into the implementation of the initial phase of World Bank supported emergency reconstruction operations. The document also outlines the need for conducting limited environmental analysis for subprojects with potential adverse impacts. Rural housing and livelihood components of ERC qualify for environmental assessment.

Implementation Schedule and Cost Estimates

For all three aspects (mitigation, monitoring, and capacity development), the proposed EMP will provide:

- an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and
- the capital and recurrent cost estimates for implementing the EMP.

D. Skills Required

The study team should preferably consist of environmental expert(s) with 8-10 years experience in EIA/IEE/EMP (preferably having exposure to the WB requirements), one environmentalist with 3-5 years experience in the analysis of field data, and one biologist/forester to address the biological aspects of the assignment.

E. Time Schedule

The study should be completed in about 4 weeks time; two additional weeks are envisaged for the EMP compilation.

F. The Relevant WB Safeguard Policies

- OP/BP 4.01 Environmental Assessment.
- OP/BP 4.04 Natural Habitats
- OP 4.09 Pest Management
- OP/BP 4.36 Forestry
- OP/BP 4.37 Safety of Dams
- OP/BP 7.50 Projects on International Waterways
- OP/BP 7.60 Projects in Disputed Areas
- BP 17.50 Disclosure of Operational Information.

Government of Pakistan
Earthquake Reconstruction & Rehabilitation Authority
Prime Minister's Secretariat (Public)
Islamabad

Code No: ☐☐☐☐

LIMITED ENVIRONMENTAL ASSESMENT FOR RURAL HOUSING
HOUSEHOLD SURVEY

GENERAL INFORMATION

District_____ Tehsil_____

Union Council_____ Village/Town _____

Name of Respondent_____ Father's/Husband Name_____

NIC No. _____

1.FAMILY SIZE: Men ☐ Women ☐ Children ☐

2. ACCESS TO SOCIAL AMENITIES (Tick mark)

Electricity ☐ Sui Gas ☐ Water Supply ☐
School ☐ Telephone ☐ Fuel wood ☐
Health Facility ☐ Road ☐ Kerosene oil ☐
Sewerage/Drainage ☐ Others ☐

3. HOUSING CONDITIONS

3.1 Total household area_____ (length x width, sft)
Covered area _____(length x width, sft)

3.2 Type of Construction	No. of Rooms	Katcha (*tick*)	Pacca (*tick*)	Katcha + Pacca (*tick*)	Other
Living rooms	☐	☐	☐	☐	☐
Kitchen	☐	☐	☐	☐	☐
Animal shed	☐	☐	☐	☐	☐
Bathroom	☐	☐	☐	☐	☐

3.3 Type of latrine Open ☐ Bu☐kets Flush Sy☐m ☐ds

3.4 Disposal of excreta: Directly into drains ☐ Septic tank ☐ Soak pit ☐
Open (Dry pi☐

3.5 When was construction of house started ----------

3.6 Payment of Tranches 1 ☐ 2 ☐ 3 ☐

3.7 Design followed for construction: Self designed ☐ ERRA ☐ Other ☐

3.8 Source of Labour

Local ☐ Outsider ☐ Skilled ☐ Unskilled ☐ Trained by ERRA ☐ Self ☐

4 TIMBER /OTHER MATERIAL

4.1 What type of material was used for house construction?

Items	New	Used	Recycled	Local/Brought from outside	Remarks
Cement					
Bricks					
Mud					
CGI sheets					
Wood					
Timber					
Stone Masonry					
Others					

4.2 Have you cut any tree/trees for construction? Yes ☐ No ☐

4.3 Number of trees cut for construction.....

4.4 Type of wood/tree used in construction: Pine ☐ Dalbergia ☐ Other ☐

5 SOLID WASTE DISPOSAL

5.1 Types of waste produced from household (Kgs)

Debris	Organic waste	Inorganic Waste	Animal Waste	Others
.....	.....	.....	.....	.....

5.2 Approximate waste generated per day.....

5.3 How many plastic bags used daily.....

5.4 Disposal sites

Open dumping ☐ Corporation dumping ☐ Used as Organic Fertilizers ☐

Any other☐

5.5 Where was the debris disposed off

Auctioned/sold ☐ Reused ☐ Open Dumping ☐ Others ☐

5.5 Do you know about environmental problems Yes ☐ No ☐

6 **WATER**

6.1 Source of drinking water?

Govt. water supply ☐ Wells ☐ Spring ☐ Hand pumps ☐ Any other ☐

6.2 Quality of water in your house:

	Yes	No
Odor	☐	☐
Color/Turbidity	☐	☐
Taste	☐	☐

6.3 Any water born disease common in your house

Diarrhea ☐ Cholera ☐ Typhoid ☐ Hepatitis ☐ Dysentery ☐ Other ☐

7. SANITATION

7.1 Mode of discharge of waste water

Open drains ☐ Sewers ☐ Open Discharge ☐ Sprinkling ☐ Others ☐

7.2 Ultimate disposal sites

Streams/Rivers ☐ Agriculture Fields ☐ Open Discharge ☐ Other ☐

GENERAL OBSERVATIONS OF INTERVIEWERS

_____

_____

Signature of Interviewer: _____ Date:_____

Name _____

LIST OF FIELD STAFF FOR THE LIMITED ENVIRONMENTAL ASSESSMENT SURVAY FOR EARTHQUACK DISTRICT OF NWFP AND AJK

S No	NAME	DESIGNATION
1	FARZANA ALTAF	Programme Manager ERRA, TEAM LEADER
2	IRFAN TUNIO	ENV. EXPERT ERRA
3	LIAQAT ALI KHAN	ENV.EXPERT PERRA
4	ASIM JAMAL	ENV. EXPERT SERRA
5	HUMERA LATEEF	ENV OFFICER RAWALAKOT
6	IRFAN ISHAQ	ENV. OFFICER BAGH
7	SITARA ZAIB	ENV. OFFICER MUZZAFRABAD
8	SHAZIA SHAHID	ENV. OFFICER ABOTTABAD
9	JAVAID PASHA	ENV. OFFICER BATTAGRM
10	UZMA S. ASLAM	ENUMERATOR
11	FOUZIA WAHAB	ENUMERATOR
12	ZOHRA GUL	ENUMERATOR
13	TAHIR MEHMOOD	ENUMERATOR
14	MALIK NASEER HAIDER	ENUMERATOR
15	SAJJAD KHAN	ENUMERATOR
16	MUQEED FAROOQ AWAN	ENUMERATOR
17	MOHAMMAD SAJID	ENUMERATOR
18	ABDUL WAKEEL	ENUMERATOR
19	M AURANGZAIB	ENUMERATOR
20	MATEEN RAZA	DATA ENTRY PERATOR
21	SANA ULLAH	DATA ENTRY OPRATOR
22	RAFAQAT	DATA ANALYIST

ANNEXURE-IV

LIST OF LOCAL FOREST TREE SPECIES IN EQ AREA

S. No	English / Local Name	Growing Age for Consumption	Botanical Name	Usage
1.	Chir	80-100 years	Pinus roxburghii	Timber & fuel both
2.	Kail (Biar)	80-100 years	Pinus wallichiana	Timber & fuel both
3.	Mannu	-------	Ulmus leavigata	Timber & fuel both
4.	Kahu	15-25 years	Olea ferrugina	Fuel wood
5.	Pulahi	15-25 years	Acacia modesta	Timber & fuel both
6.	Toot	10-15 years	Morus alba	Fuel wood
7.	Dhaman	10-15 years	Grewia oppostifolia	----
8.	Semal	5-10 years	Salmalia malabricum	Timber & fuel both
9.	Walnut	25-56 years	Junglans regia	Timber & fuel both
10.	Shisham	10-15 years	Dalburgia sissoo	Timber & fuel both
11.	Robinia	5-10 years	Robinia pseudoacacia	Fuel wood
12.	Poplar (Sufeda)	4-8 years	Populus alba	Timber & fuel both
13.	Bukain (Dreak)	10-12 years	Melia azedarach	Fuel wood
14.	Salix (Biensa)	8-10 years	Salix tetraspesma	Fodder, shake etc
15.	Weeping willow	8-10 years	Salix babylonica	-do-
16.	Kachnar	3-8 years	Bauhinia variegate	Fuel wood
17.	Daru (Drunni)	------	Ponica granatum	Fuel wood
18.	Hari	5-8 years	Ponica granatum	Fuel wood
19.	Batangi	10-12 years	Pyrus pashia	Fuel wood
20.	Phagwara	10-12 years	Ficus palmate	Fuel wood
21.	Toon	-----	Cedrella toona	Timber & fuel both
22.	Bankhor	40-60 years	Aesculus indica	Timber & fuel both
23.	Beri	20-30 years	Zizypyrus numularia	Fuel wood
24.	Amlok	8-12 years	Diospyrus lotus	Fuel wood
25.	Rentha	-----	Sapindus mukrosi	Fuel wood
26.	Paper mulberry	5-10 years	Brousonettia papyrifra	Fuel wood
27.	Amaltas	8-12 years	Cassia fistula	Fuel wood
28.	Ipil Ipil	5-10 years	Leucaena lecosophilla	Fodder
29.	Rhin	15-25 years	Quercus incana	Timber & fuel both
30.	Gaynera	-----	Nerium odorum	Fodder
31.	Amla	------	Phyllanthus emblica	Fuel wood
32.	Chinar	15-25 years	Platanus orientalis	Timber & fuel both
33.	Sukh chain	-----	Pongamia pinnata	Fuel wood
34.	Deodar	100-120 years	Cedrus deodara	Timber
35.	Akhrot	25-50 years	Juglans regia	Timber
36.	Choor	15-25 years	Quercus ilex	Timber & fuel both
37.	Peepal	25-50 years	Ficus religiosa	Timber & fuel both

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